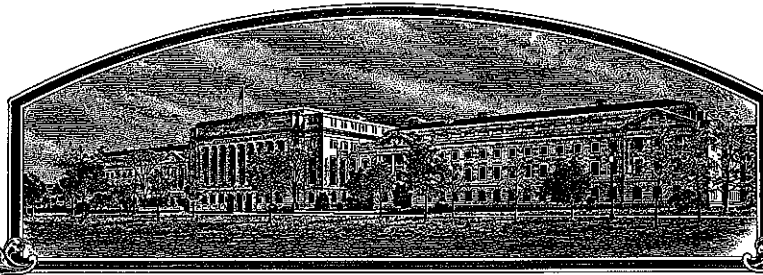


No.

200200202



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Texas Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

POTATO

'TX1523-1Ru/Y'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifteenth day of April, in the year two thousand and eight.

Attest:

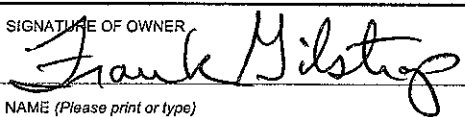
[Signature]
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICEAPPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Texas Agricultural Experiment Station		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME TX1523-1Ru/Y		3. VARIETY NAME TX1523-1Ru/Y	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) Frank E. Gilstrap Associate Agency Director, TAES 2147 TAMU College Station, TX 77843-2147		5. TELEPHONE (include area code) 979-845-4747		FOR OFFICIAL USE ONLY PVPO NUMBER 200200202	
		6. FAX (include area code) 979-458-4765			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) State of Texas Research Agency		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Janie Hurley Technology Licensing Associate, Agriculture/Life Sciences Technology Licensing Office The Texas A&M University System 3369 TAMU College Station, TX 77843-3369				FILING AND EXAMINATION FEES: \$ 2,705.00 DATE 7/8/02 CERTIFICATION FEE: \$ 768.00 DATE 11/23/07	
11. TELEPHONE (include area code) 979-847-8682		12. FAX (include area code) 979-845-1402		13. E-MAIL jhurley@tamu.edu	
14. CROP KIND (Common Name) Potato		15. GENUS AND SPECIES NAME OF CROP Solanum tuberosum (L.)		16. FAMILY NAME (Botanical) Solanaceae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input checked="" type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22) LAC 10-16-2007		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED			
21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE NUMBER 1,2,3, etc. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED 6 (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) Frank E. Gilstrap		NAME (Please print or type)			
CAPACITY OR TITLE Associate Agency Director, TAES		DATE 07/02/02		CAPACITY OR TITLE	
				DATE	

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
- (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
- (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See *Regulations and Rules of Practice, Section 97.103*).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

09/24/01 - TX1523-lRu/Y material was transferred to California-Oregon Seed Company for evaluation purposes only under a Material Transfer Agreement between the parties.

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed/lr-sd.htm>

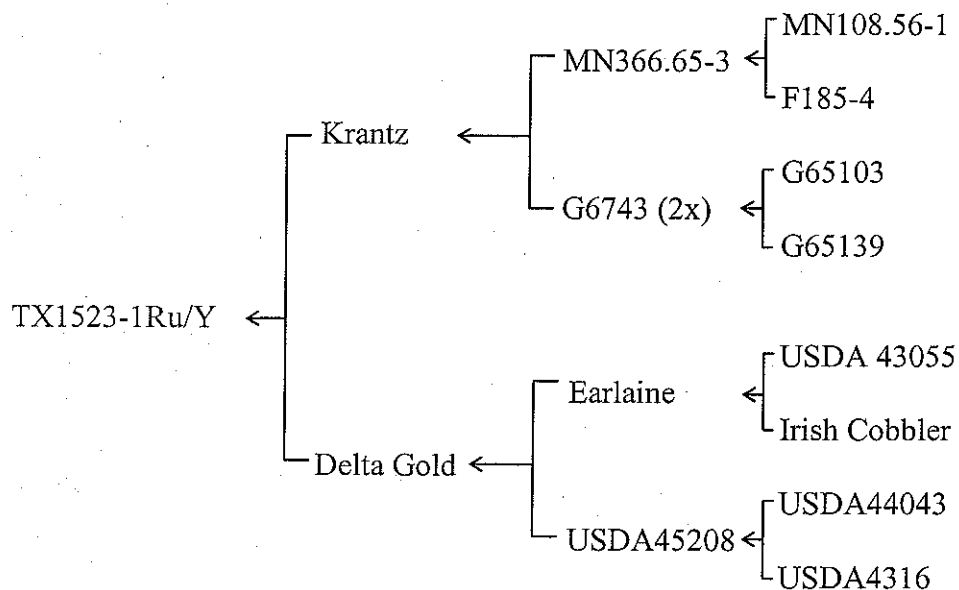
According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete.

Exhibit A. Origin and Breeding History of the Variety.

BREEDING HISTORY. TX1523-1Ru/Y resulted from a cross of Krantz X Delta Gold that was made by the Texas Potato Variety Development Program during the fall/winter of 1990/91. It was originally selected near Springlake, Texas in August of 1992. The pedigree is shown below:



Krantz (Lauer et al., 1988), a cross made in Minnesota with original selection in Texas, is an oblong, light russet, white flesh variety with medium-late maturity, excellent culinary qualities, resistance to hollow heart, moderate resistance to *verticillium* wilt, and high resistance to common scab. Delta Gold (Reeves et al., 1979) is a round, buff skin, yellow flesh variety with medium-late maturity, excellent for baking and processing, moderate resistance to scab, and immune to net necrosis and PVA.

EVALUATION HISTORY. TX1523-1Ru/Y was first evaluated in 1995 in replicated trials near Springlake, TX and Hooper, CO. Subsequent trials were conducted in 1996, 1997, and 1998 near Springlake and in 1998 near Rio Grande City, TX. Additional trials were conducted in 1999 near Springlake, Dilley, TX., Dalhart, TX., and Hobbs, NM. In 2000, it was evaluated in Rio Grande City, Springlake, and Dalhart. In 1998 and 1999, TX1523-1Ru/Y was entered in the Southwestern Regional Trials (Texas, Colorado, and California). In 2000 and 2001, TX1523-1Ru/Y was entered in the Western Regional Red/Specialty Trial conducted at 9 sites in Texas, Colorado, California, Idaho, Washington, and Oregon. It has also been evaluated in New Jersey, Wisconsin, Minnesota, North Dakota, and Nebraska.

TX1523-1Ru/Y has been propagated and observed in over 10 years of trials and from multiple cycles of tissue culture stocks and has proven to be uniform and stable since the original selection in 1992. No variants have been observed from generation to generation.

The selection criteria for TX1523-1Ru/Y was based on the objective of developing an attractive russet with yellow flesh, outstanding culinary qualities, and good yield. To our knowledge, this was the first yellow flesh russet developed and released in the US (This is why the parents Krantz (Russet) and Delta Gold (yellow flesh) were chosen for hybridization).

Exhibit B. Novelty Statement (Statement of Distinctness).

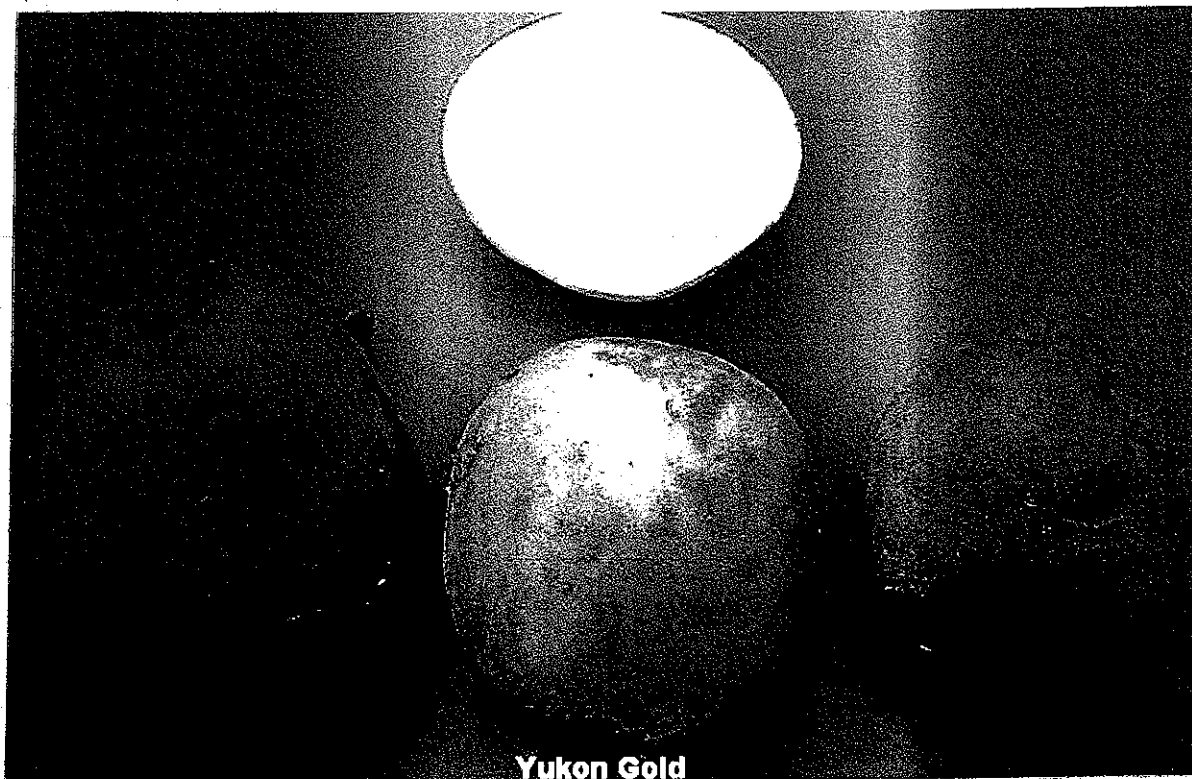
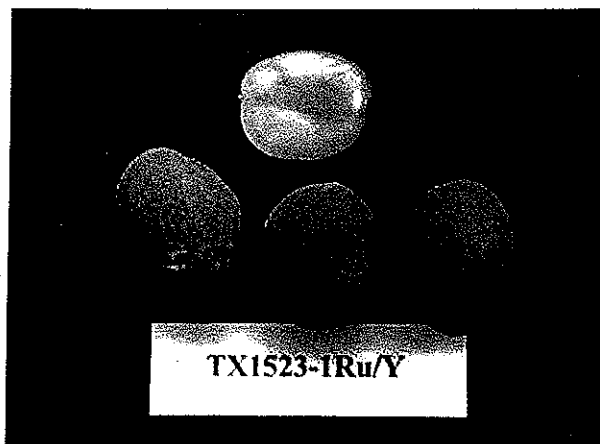
Based on overall morphology, TX1523-1Ru/Y is most similar to Yukon Gold and Russet Norkotah. TX1523-1Ru/Y most clearly differs from Yukon Gold and Russet Norkotah in the following traits:

Trait	TX1523-1Ru/Y	Yukon Gold	Russet Norkotah	Location of Evidence
Flesh Color	RHS 11B (Yellow Group)	RHS 11B (Yellow Group)	RHS 157A (Green-White Group)	Exhibit C p. 11, Attached Fig.1 and Table 1d (again referenced in Exhibit D)
Tuber Shape (1=round 5=long)	3.1 (Oval)	3.1 (Oval)	4.5 (Long)	Exhibit C p. 9, Attached Fig.1 and Table 1d (again referenced in Exhibit D)
Skin Color	RHS 199B (Brown Group)	RHS 161A (Greyed- Yellow Group)	RHS 199A (Brown Group)	Exhibit C p. 8, Attached Fig.1 and Table 1d (again referenced in Exhibit D)
Degree of Russeting (1=none 5=heavy)	3.6 (Medium) <i>= netted</i>	1.5 (None) <i>= smooth</i>	4.7 (Heavy) <i>= Heavily russeted</i>	Attached Fig.1, 5, 6 and Table 1d (again referenced in Exhibit D)

per exhc descriptors

*LMC
10-11-2007*

Fig. 1 Tubers and interior of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah



#200200202

**Fig. 1 Tubers and interior of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah
(continued)**

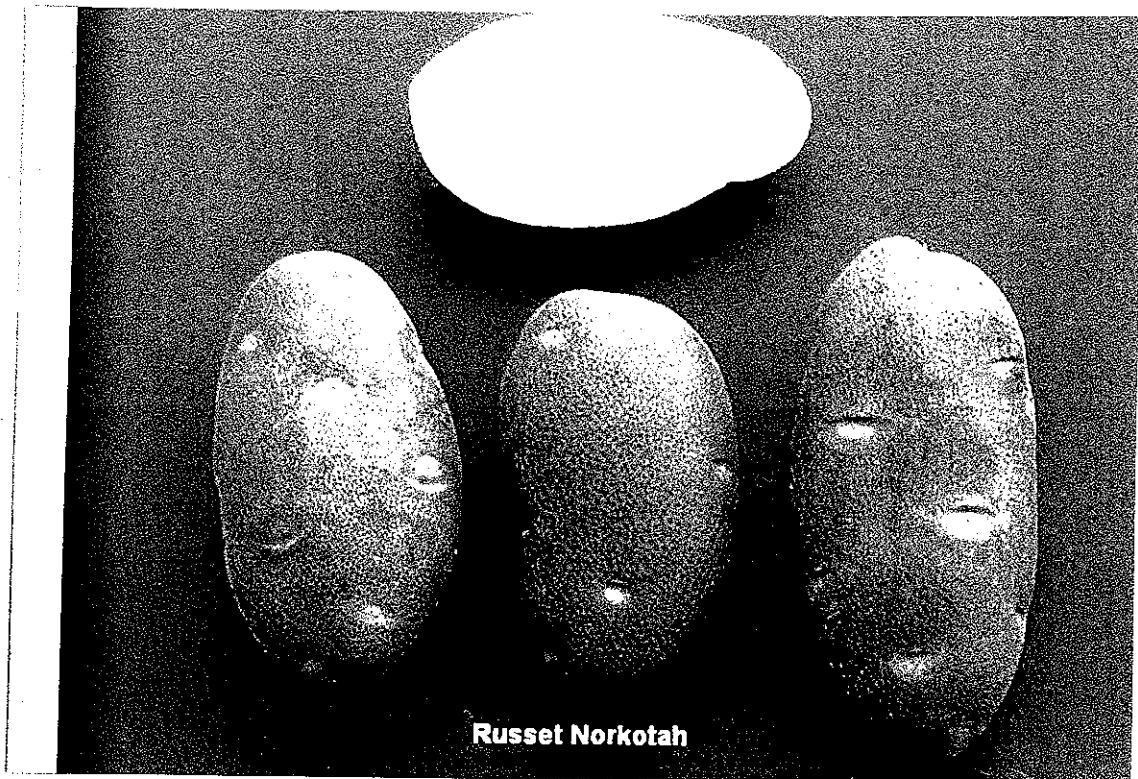


Fig. 5 Light Sprouts of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

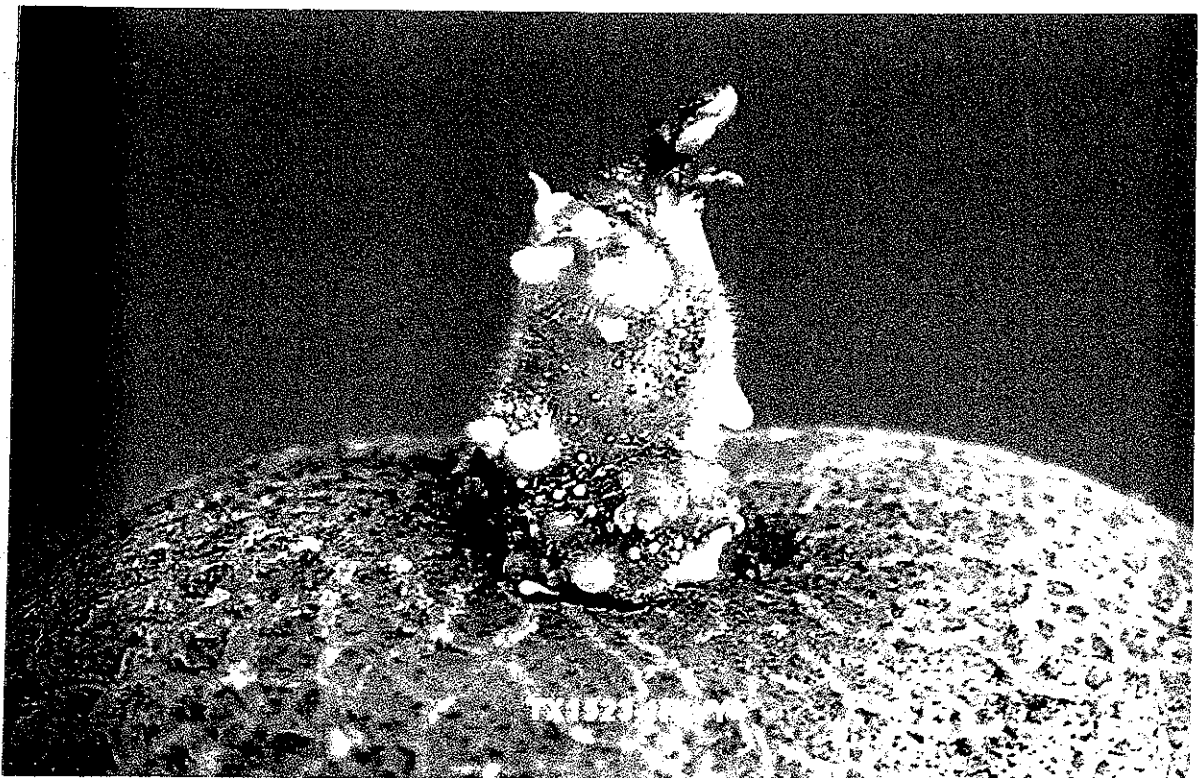


Fig. 5 Light Sprouts of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah
(continued)

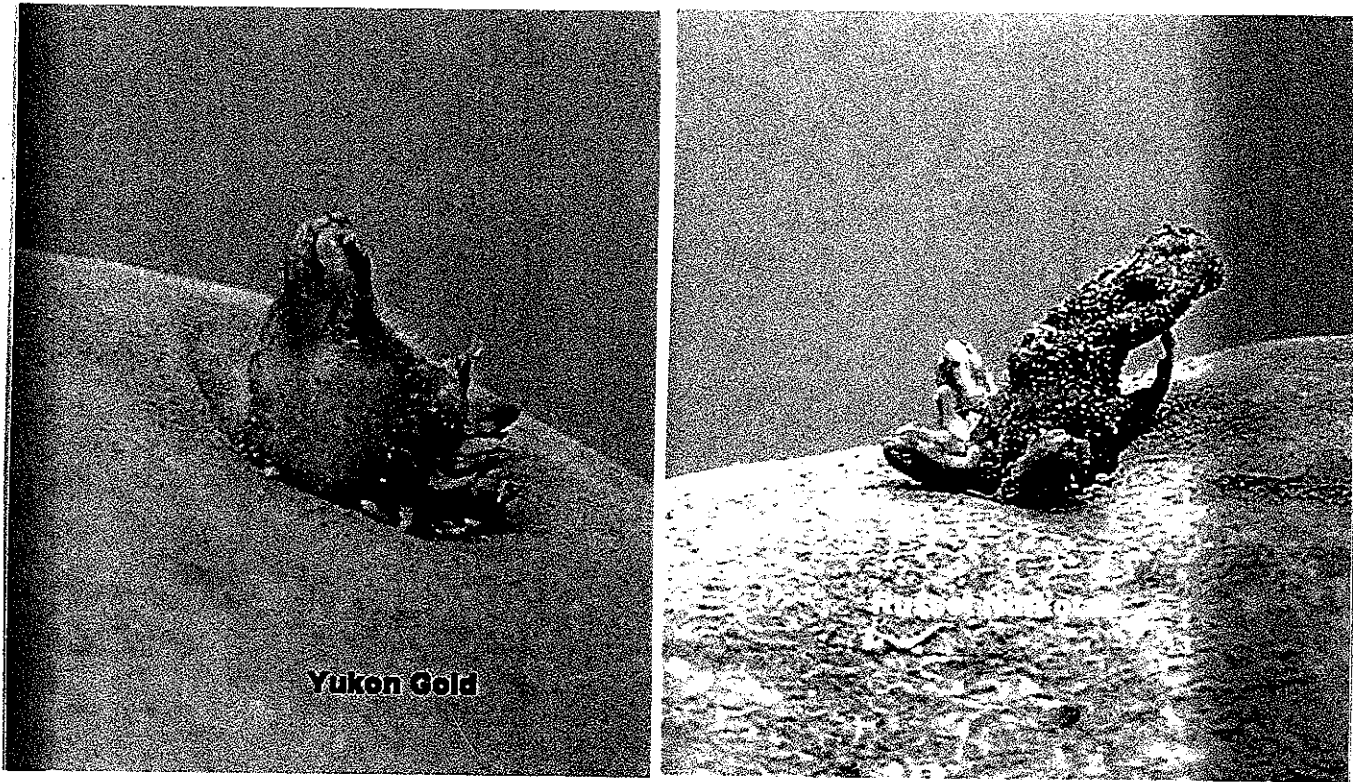
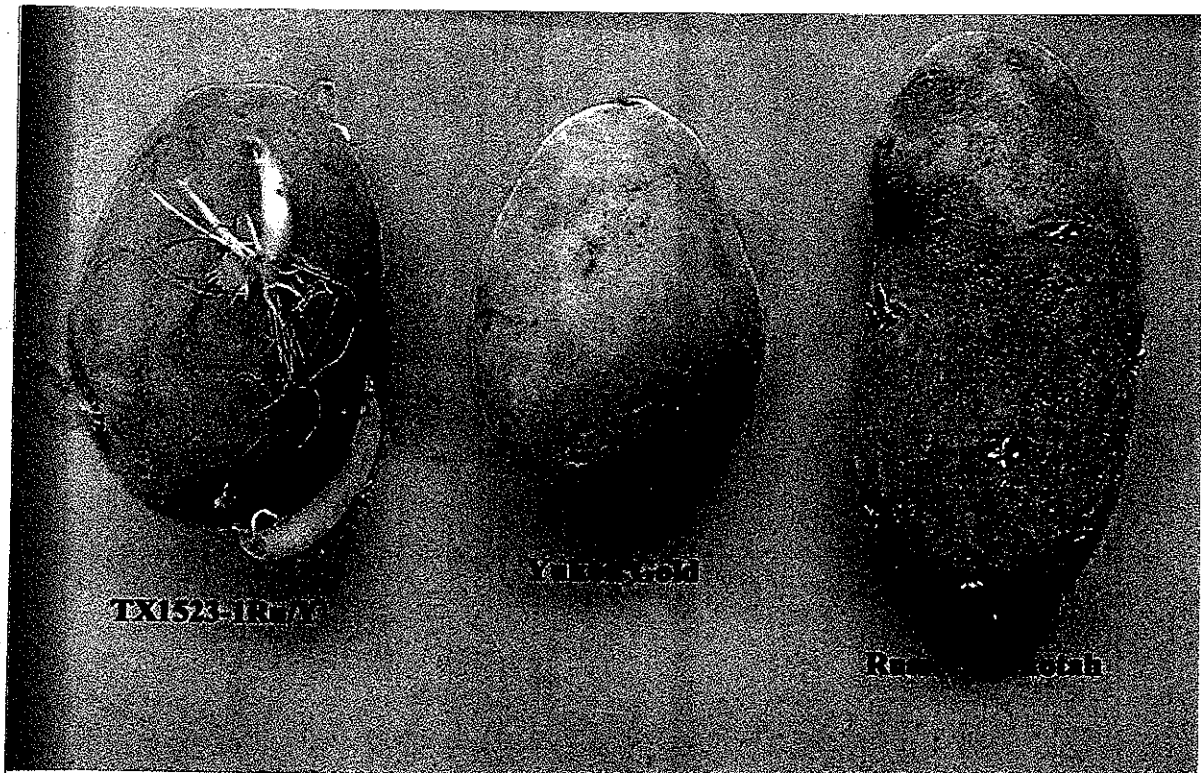


Fig. 6 After storage sprouting for TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah



Texas
Table 1d. Flesh color, tuber shape, degree of russeting, eye depth, skin color, growth cracks, shatter bruise, scab, knobiness, feathering, percent hollow heart, percent blackspot, percent vascular discoloration, percent internal brownspot of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah grown near Springlake and Dalhart, Texas 2004-2006.

Variety or Selection	Flesh Color ¹	Tuber Shape ²	Degree of Russeting ³	Eye Depth ⁴	Skin Color ⁵	Growth Cracks ⁶	Shatter Bruise ⁷	Scab ⁸	Knobs ⁹	Percent Hollow Heart	Percent Blackspot	Percent Vascular Discoloration ¹⁰	Percent Internal Brownspot
TX1523-1Ru/Y	3.0	3.1	3.6	4.1	3.7	5.0	5.0	5.0	5.0	0	2	0	1
Yukon Gold	3.0	3.1	1.5	3.8	1.6	5.0	5.0	5.0	5.0	15	0	0	7
Russet Norkotah	1.4	4.5	4.7	3.8	4.6	5.0	5.0	5.0	5.0	3	0	0	2
Average	2.5	3.5	3.3	3.9	3.3	5.0	5.0	5.0	5.0	6	1	0	3
L.S.D. (.05)	0.3	0.2	0.2	0.2	0.2	ns	ns	ns	ns	ns	ns	ns	ns

¹ 1=light to 5=dark

² 1=round to 5=long

³ 1=none to 5=heavy

⁴ 1=deep to 5=shallow

⁵ 1=light to 5=dark

⁶ 1 to 5=none

⁷ 1 to 5=none

⁸ 1 to 5=none

⁹ 1 to 5=none

¹⁰ 1 to 5=none

¹¹ Stem end vascular discoloration severely evaluated

#200200202

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 8.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Potato (*Solanum tuberosum* L.)

INSTRUCTIONS

#200200202

The Objective Description Form:

The objective description form lists characteristics to be used as the basis for developing the description of potato varieties. It is designed to guide the applicant in describing a variety in detail so a meaningful comparison with other potato varieties can be accomplished. It is recommended that this form be completed in as much detail as possible to ensure an accurate description. Please fill in the requested data and place the appropriate number that describes the varietal characters typical of this potato variety and the reference varieties in the respective boxes.

Test Guidelines:

Any statistical and trial (field test) data that may be necessary to support the variety description should be attached to this form. Please include for trial data the plot size, number of replications, number of plants, plant spacing, trial locations and growing periods. Trials should normally be conducted at one place, in the region that the variety has been adapted for, with a minimum of one growing period in the United States. All comparative data should be determined from varieties entered in the same trials. The size of the plots should be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made at the end of the growing period. As a minimum, each test should include a total of 60 plants which should be divided between two or more replicates. Separate plots for observation and measuring can only be used if they have been subject to similar environmental conditions. To determine color for a plant or plant parts a recognized standard color chart must be used such as the Royal Horticultural Society (RHS) Color Chart or Munsell Color Chart (MCC).

Reference Varieties:

The application variety should be compared to at least one reference variety preferably a set of reference varieties. The reference varieties should be market class standard varieties currently grown in the United States and or the variety (ies) most similar. The following varieties are recommended as market class standards to be used as reference varieties:

Yellow-flesh table-stock	Yukon Gold
Round-white table-stock	Superior
Chip-processing	Atlantic, Snowden, Norchip
Frozen-processing	Russet Burbank
Russet table-stock	Russet Burbank, Russet Norkotah, Goldrush
Red table-stock	Red Pontiac, Red Norland, Red Lasoda

If the applicant does not use one of the recommended reference varieties by the PVP office, a complete description of the reference variety should be submitted by the applicant (Exhibit C).

Characteristics:

Light sprout characteristics are supplied in **Figure 1**. The plant type and growth habit characteristics are collected at early first bloom. **Figure 2** is supplied to help visualize the growth habit. For this descriptor, look at the stems rather than the stems and foliage. Plant maturity is measured at natural vine senescence.

Stem characteristics are also collected at early bloom. Stem anthocyanin coloration is divided into two descriptors: Location and intensity. **Figure 3** is supplied to give an example of stem wings.

Leaf characteristics are observed at early first bloom. Fully-developed leaves located on the middle third of the plant should be used. Leaf pubescence refers to general trichomes. **Figure 4** is supplied for examples of leaf silhouette. Leaf stipules are shown in **Figure 5** for visual definition. **Figure 6** is supplied to define leaf characteristics. **Figure 7** should be used to describe terminal and primary leaflet shape. **Figures 8 and 9** are used to describe the terminal and primary leaflet shape of tip and base, respectively. To measure the total number of primary leaflets pairs, collect 10 fully developed petioles (with leaves attached from each replication) and take the average number of secondary and tertiary leaflets. Glandular trichomes should be described in the Additional Comments and Characteristics (Descriptor 15).

Inflorescence characteristics should be measured at early first bloom. **Figures 10, 11 and 12** are supplied to describe anther and stigma shape, respectively. Corolla, calyx, anther, stigma, and pollen should be observed on newly opened flowers. Berry production should be based on field-grown plants rather than greenhouse plants.

Tuber characteristics should be observed following harvest. **Figures 13 and 14** are available to describe distribution of secondary color and tuber shape, respectively.

Disease and pest reactions should be based upon specific tests or statistical analysis rather than just field observations, rating 1 as Highly Resistance and 9 as Highly Susceptible, please follow the scale on each descriptor. Other diseases or pests reactions not requested can be described if it is felt that it would be helpful to determine novelty of the variety.

Quality characteristics should be described according to the market use.

If the plant is transgenic, this gene insertion(s) should be described.

Chemical identification and any other characteristics can be described if they are helpful in distinguishing the variety.

Legend:

V = Application Variety

R1-R4 = Reference Varieties

***** = Both the reference variety (ies) and application variety must be described for characteristics designated with an asterisk.

NAME OF APPLICANT (S) Texas Agricultural Experiment Station	TEMPORARY OR EXPERIMENTAL DESIGNATION TX1523-1Ru/Y	VARIETY NAME TX1523-1Ru/Y
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) Frank E. Gilstrap Associate Agency Director, TAES 2147 TAMU College Station, TX 77843-2147		FOR OFFICIAL USE ONLY PVPO NUMBER #200200202

REFERENCE VARIETIES: Enter the reference variety name in the appropriate box.

Application Variety (V)	Reference Variety 1 (R1)	Reference Variety 2 (R2)	Reference Variety 3 (R3)	Reference Variety 4 (R4)
TX1523-1Ru/Y	Yukon Gold	Russet Norkotah		

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

1. MARKET CHARACTERISTICS:

*MARKET CLASS:

1 = Yellow-flesh Tablestock 2 = Round-white Tablestock 3 = Chip-processing 4 = Frozen-processing
5 = Russet Tablestock 6 = Other _____

V	1	R1	1	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

2. LIGHT SPROUT CHARACTERISTICS: (See Figure 1)

*LIGHT SPROUT: GENERAL SHAPE

1 = Spherical 2 = Ovoid 3 = Conica 4 = Broad cylindrica 5 = Narrow cylindrical 6 = Other _____

V	4	R1	3	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: PUBESCENCE OF TIP

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	4	R1	4	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) _____

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

*LIGHT SPROUT BASE: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	4	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

* LIGHT SPROUT TIP: HABIT

1 = Closed 2 = Intermediate 3 = Open

V	2	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

2. LIGHT SPROUT CHARACTERISTICS: (continued)

LIGHT SPROUT TIP: PUBESCENCE

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

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V	1	R1	2	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT TIP ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) _____

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT TIP: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	3	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

LIGHT SPROUT ROOT INITIALS: FREQUENCY

1 = Short 2 = Medium 3 = Long

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

3. PLANT CHARACTERISTICS:

GROWTH HABIT: (See Figure 2)

3 = Erect (>45° with ground) 5 = Semi-erect (30-45° with ground) 7 = Spreading

V	5	R1	4	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

TYPE:

1 = Stem (foliage open, stems clearly visible) 2 = Intermediate 3 = Leaf (Foliage closed, stems hardly visible)

V	2	R1	1	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

MATURITY: Days after planting (DAP) at vine senescence

V	99	R1	94	R2	110	R3		R4	
---	----	----	----	----	-----	----	--	----	--

PLANTING DATE:

V	3-26	R1	3-26	R2	3-29	R3		R4	
---	------	----	------	----	------	----	--	----	--

*REGIONAL AREA:

1 = Pacific North West (WA, OR, ID, CO, CA) 2 = North Central (ND, WI, MI, MN, OH) 3 = North East (ME, NY, PA, NJ, MD, MA, RI,)
 4 = Mid-Atlantic West (VI, NC, SC, South NJ, FL) 5 = South (LA, TX, AZ, NE) 6 = Canada
 7 = Europe 8 = England 9 = Latin America 10 = Brazil 11 = Other _____

V	5	R1	5	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

MATURITY CLASS:

1 = Very Early (<100 DAP) 2 = Early (100-110 DAP) 3 = Mid-season (111-120 DAP) 4 = Late (121-130 DAP) 5 = Very Late (>130 DAP)

V	2	R1	1	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

4. STEM CHARACTERISTICS: Measure at early first bloom*** STEM ANTHOCYANIN COLORATION:**

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	1	R1	4	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

STEM WINGS: (See Figure 3)

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	1	R1	5	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

5. LEAF CHARACTERISTICS:**LEAF COLOR:** (Observe fully developed leaves located on middle 1/3 of plant)

1 = Yellowing-green 2 = Olive-green 3 = Medium Green 4 = Dark Green 5 = Grey-green 6 = Other _____

V	1	R1	1	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart

(Observe fully developed leaves located on middle 1/3 of plant and circle the appropriate color chart)

V	137A	R1	137A	R2	137B	R3		R4	
---	------	----	------	----	------	----	--	----	--

LEAF PUBESCENCE DENSITY:

1 = Absent 2 = Sparse 3 = Medium 4 = Thick 5 = Heavy

V	1	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF PUBESCENCE LENGTH:

1 = None 2 = Short 3 = Medium 4 = Long 5 = Very Long

V	1	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

(Note Descriptor #15 can be used to describe the type and length of the glandular trichomes observed.)

*** LEAF SILHOUETTE:** (See Figure 4)

1 = Closed 3 = Medium 5 = Open

V	5	R1	5	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

PETIOLES ANTHOCYANIN COLORATION:

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very Strong

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

LEAF STIPULES SIZE: (See Figure 5)

1 = Absent 3 = Small 5 = Medium 7 = Large

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

TERMINAL LEAFLET SHAPE (See Figures 6 and 7)

1 = Narrowly ovate 2 = Medium Ovate 3 = Broadly Ovate 4 = Lanceolate 5 = Elliptical 6 = Obovate 7 = Oblong 8 = Other _____

V	2	R1	1	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

5. LEAF CHARACTERISTICS: (continued)

TERMINAL LEAFLET TIP SHAPE: (See Figures 6 and 8)

1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

* TERMINAL LEAFLET BASE SHAPE: (See Figure 9)

1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other * Asymmetrically

V	3	R1	2*	R2	3*	R3		R4	
---	---	----	----	----	----	----	--	----	--

TERMINAL LEAFLET MARGIN WAVINESS:

1 = Absent 2 = Slight 3 = Weak 4 = Medium 5 = Strong

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER OF PRIMARY LEAFLET PAIRS: (See Figure 6)

AVERAGE:

V	3	R1	5	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

RANGE:

V	3	to 5	R1	3	to 5	R2	3	to 5	R3		to	R4		to
---	---	------	----	---	------	----	---	------	----	--	----	----	--	----

PRIMARY LEAFLET TIP SHAPE: (See Figures 6 and 8)

1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

V	3	R1	3	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET SIZE:

1 = Very Small 2 = Small 3 = Medium 4 = Large 5 = Very Large

V	3	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET SHAPE: (See Figures 6 and 7)

1 = Narrowly ovate 2 = Medium ovate 3 = Broadly ovate 4 = Lanceolate 5 = Elliptical 6 = Ovate 7 = Oblong 8 = Other _____

V	2	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY LEAFLET BASE SHAPE: (See Figures 6 and 9)

1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other _____

V	6	R1	2	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER OF SECONDARY AND TERTIARY LEAFLET PAIRS: (See Figure 6)

AVERAGE:

V	12	R1	14	R2	14	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	8	to 16	R1	10	to 17	R2	8	to 19	R3		to	R4		to
---	---	-------	----	----	-------	----	---	-------	----	--	----	----	--	----

5. LEAF CHARACTERISTICS: (continued)

NUMBER OF INFLORESCENCE/PLANT:

AVERAGE:

V	3.8	R1	3.4	R2	3.2	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

RANGE:

V	1	to 7	R1	2	to 7	R2	2	to 4	R3		to	R4		to
---	---	------	----	---	------	----	---	------	----	--	----	----	--	----

NUMBER OF FLORETS/INFLORESCENCE:

AVERAGE:

V	15	R1	12.4	R2	8.9	R3		R4	
---	----	----	------	----	-----	----	--	----	--

RANGE:

V	9	to 24	R1	7	to 20	R2	6	to 12	R3		to	R4		to
---	---	-------	----	---	-------	----	---	-------	----	--	----	----	--	----

* COROLLA INNER SURFACE COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

V	85A	R1	85A	R2	155C	R3		R4	
---	-----	----	-----	----	------	----	--	----	--

* COROLLA OUTER SURFACE COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

V	85D	R1	85A	R2	155C	R3		R4	
---	-----	----	-----	----	------	----	--	----	--

* COROLLA INNER SURFACE COLOR: (Measure predominant color of newly open flower, if flowers are bi-color please use the ratio codes)

1 = White 2 = Red-violet 3 = Blue-violet 4 = Cream 5 = Red-purple 6 = Blue 7 = Pink 8 = Pink-white 9 = Purple 10 = Violet
 11 = Purple-violet 13 = Violet-White 1:1 14 = Violet-White 1:3 15 = Violet-White 3:1 16 = Violet-White Halo 17 = Pink-White 1:1 18 =
 Pink-White 1:3 19 = Pink-White 3:1 20 = Pink-White Halo 21 = RedViolet-White 1:1 22 = RedViolet-White 1:3 23 = RedViolet-White 3:1
 24 = RedViolet-White Halo 25 = BlueViolet-White 1:1 26 = BlueViolet-White 1:3 27 = BlueViolet-White 3:1 28 = BlueViolet-White Halo
 12 = Other

V	10	R1	10	R2	1	R3		R4	
---	----	----	----	----	---	----	--	----	--

COROLLA SHAPE: (See Figure 10)

1 = Very rotate 2 = Rotate 3 = Pentagonal 4 = Semi-stellate 5 = Stellate

V	3	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

6. INFLORESCENCE CHARACTERISTICS:

CALYX ANTHOCYANIN COLORATION:

1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very strong

V	3	R1	6	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

ANTHER COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure when newly opened flower is fully expanded and circle the appropriate color chart)

V	17A	R1	17B	R2	17B	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

ANTHER SHAPE: (See Figure 11)

1 = Broad cone 2 = Narrow cone 3 = Pear-shaped cone 4 = Loose 5 = Other

V	1	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

6. INFLORESCENCE CHARACTERISTICS: (continued)

POLLEN PRODUCTION:

1 = None 3 = Some 5 = Abundant

V	2	R1	3	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

STIGMA SHAPE: (See Figure 12)

1 = Capitate 2 = Clavate 3 = Bi-lobed

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

STIGMA COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V	146A	R1	146A	R2	137A	R3		R4	
---	------	----	------	----	------	----	--	----	--

BERRY PRODUCTION: (Under field conditions)

1 = Absent 3 = Low 5 = Moderate 7 = Heavy 9 = Very Heavy

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS:

* PREDOMINANT SKIN COLOR:

1 = White 2 = Light Yellow 3 = Yellow 4 = Buff 5 = Tan 6 = Brown 7 = Pink 8 = Red 9 = Purplish-red
10 = Purple 11 = Dark purple-black 12 = Other _____

V	5	R1	5	R2	6	R3		R4	
---	---	----	---	----	---	----	--	----	--

PREDOMINANT SKIN COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V	199B	R1	161A	R2	199A	R3		R4	
---	------	----	------	----	------	----	--	----	--

SECONDARY SKIN COLOR:

1 = Absent 2 = Present (please describe)

V	1	R1	2	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

SECONDARY SKIN COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color)

V		R1	55C	R2		R3		R4	
---	--	----	-----	----	--	----	--	----	--

SECONDARY SKIN COLOR DISTRIBUTION: (See Figure 13)

1 = Eyes 2 = Eyebrows 3 = Splashed 4 = Scattered 5 = Spectacled 6 = Stippled 7 = Other _____

V		R1	1	R2		R3		R4	
---	--	----	---	----	--	----	--	----	--

SKIN TEXTURE:

1 = Smooth 2 = Rough (flaky) 3 = Netted 4 = Russetted 5 = Heavily russetted 6 = Other _____

V	3	R1	1	R2	5	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

* TUBER SHAPE: (See Figure 14)

1 = Compressed 2 = Round 3 = Oval 4 = Oblong 5 = Long 6 = Other _____

V	3.5	R1	3.5	R2	4.5	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

TUBER THICKNESS:

1 = Round 2 = Medium thick 3 = Slightly flattened 4 = Flattened 5 = Other _____

V	3	R1	3	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

TUBER LENGTH (mm):

AVERAGE:

V	92	R1	81	R2	86	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	75	to	106	R1	72	to	96	R2	79	to	96	R3		to	R4		to
---	----	----	-----	----	----	----	----	----	----	----	----	----	--	----	----	--	----

STANDARD DEVIATION:

V	10.0	R1	7.4	R2	5.7	R3		R4	
---	------	----	-----	----	-----	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN:

V	245	R1	179	R2	128	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

TUBER WIDTH (mm)

AVERAGE:

V	74	R1	68	R2	53	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	64	to	78	R1	60	to	78	R2	46	to	59	R3		to	R4		to
---	----	----	----	----	----	----	----	----	----	----	----	----	--	----	----	--	----

STANDARD DEVIATION:

V	5.3	R1	5.6	R2	3.9	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	245	R1	179	R2	128	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

TUBER THICKNESS (mm):

AVERAGE:

V	56	R1	54	R2	46	R3		R4	
---	----	----	----	----	----	----	--	----	--

RANGE:

V	49	to	65	R1	48	to	60	R2	40	to	53	R3		to	R4		to
---	----	----	----	----	----	----	----	----	----	----	----	----	--	----	----	--	----

STANDARD DEVIATION:

V	4.6	R1	3.6	R2	4.0	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	245	R1	179	R2	128	R3		R4	
---	-----	----	-----	----	-----	----	--	----	--

TUBER EYE DEPTH:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

V	2	R1	2	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

TUBER LATERAL EYES:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

V	2	R1	2	R2	3	R3		R4	
---	---	----	---	----	---	----	--	----	--

NUMBER EYE/TUBER:

AVERAGE:

V	9	R1	10	R2	17	R3		R4	
---	---	----	----	----	----	----	--	----	--

RANGE:

V	7	to	11	R1	7	to	18	R2	16	to	18	R3		to	R4		to
---	---	----	----	----	---	----	----	----	----	----	----	----	--	----	----	--	----

DISTRIBUTION OF TUBER EYES:

1 = Predominantly apical 2 = Evenly distributed

V	1	R1	1	R2	2	R3		R4	
---	---	----	---	----	---	----	--	----	--

PROMINENCE OF TUBER EYEBROWS:

1 = Absent 2 = Slight prominence 3 = Medium prominence 4 = Very prominent 5 = Other _____

V	2	R1	3	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

PREDOMINANT TUBER FLESH COLOR

1 = White 2 = Light Yellow 3 = Yellow 4 = Buff 5 = Tan 6 = Brown 7 = Pink 8 = Red 9 = Purplish-red
10 = Purple 11 = Dark purple-black 12 = Other

V	3	R1	3	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

PRIMARY TUBER FLESH COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V	11B	R1	11B	R2	157A	R3		R4	
---	-----	----	-----	----	------	----	--	----	--

SECONDARY TUBER FLESH COLOR:

1 = Absent

2 = Present, please describe: _____

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

SECONDARY TUBER FLESH COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

NUMBER OF TUBERS/PLANT:

1 = Low (<8)

2 = Medium (8-15)

3 = High (>15)

V	1	R1	1	R2	1	R3		R4	
---	---	----	---	----	---	----	--	----	--

8. DISEASES CHARACTERISTICS:

DISEASES REACTION: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lesions in Number and Size
 4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible
 7 = Susceptible 9 = Highly Susceptible

LATE BLIGHT: (Phytophthora)

V	5	R1	7	R2	7	R3		R4	
---	---	----	---	----	---	----	--	----	--

EARLY BLIGHT: (Alternaria)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

SOFT ROT (Erwinia)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

COMMON SCAB (Streptomyces)

V	2	R1	4	R2	4	R3		R4	
---	---	----	---	----	---	----	--	----	--

POWDERY SCAB (Spongospora)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

DRY ROT (Fusarium)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

POTATO LEAF ROLL VIRUS (PLRV)

V	7	R1	7	R2	7	R3		R4	
---	---	----	---	----	---	----	--	----	--

8. DISEASES CHARACTERISTICS: (continued)

POTATO VIRUS X (PVX)

V	7	R1	7	R2	7	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS Y (PVY)

V	7	R1	7	R2	7	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS M (PVM)

V	7	R1	7	R2	7	R3		R4	
---	---	----	---	----	---	----	--	----	--

POTATO VIRUS A (PVA)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

GOLDEN NEMATODE (Globodera)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

ROOT - KNOT NEMATODE (Meloidogyne)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

OTHER DISEASE

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

PHYSIOLOGICAL DISORDER

1 = Malformed shape
6 = Blackheart2 = Tuber cracking
7 = Internal sprouting3 = Feathering
8 = Other

4 = Hollow heart

5 = Internal necrosis

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

9. PESTS CHARACTERISTICS:

PEST REACTION: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lesions in Number and Size
4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible
7 = Susceptible 9 = Highly Susceptible

COLORADO POTATO BEETLE (CPB) (*Leptinotarsa*)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

GREEN PEACH APHID (*Myzus*)

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

OTHER:

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

OTHER:

V		R1		R2		R3		R4	
---	--	----	--	----	--	----	--	----	--

10. GENE TRAITS:INSERTION OF GENES: 1 = YES 2 = NO ☒

IF YES, describe the gene(s) introduced or attach information:

11. QUALITY CHARACTERISTICS:**CHIEF MARKET:**

SPECIFIC GRAVITY (wt. air/wt. air - wt. water)

1 = <1.060 2 = 1.060-1.069 3 = 1.070-1.079 4 = 1.080-1.089 5 = >1.090

V 3

R1 4

R2 2

R3

R4

TOTAL GLYCOALKALOID CONTENT (mg./100 g. fresh tuber)

V 3.0

R1 3.2

R2 3.3

R3

R4

OTHER QUALITY CHARACTERISTICS: Describe any other quality characteristics that may aid in identification, (e.g., chip-processing, french fry processing, baking, boiling, after-cooking darkening). Please attach data and corresponding protocol.**12. CHEMICAL IDENTIFICATION:**

Describe chemical traits of the candidate variety that aid in its identification (e.g., protein or DSN electrophoresis). Please attach data and the corresponding protocol.

13. FINGER PRINTING MARKERS:ISOZYMES 1 = YES 2 = NO ☒

IF YES, attach information

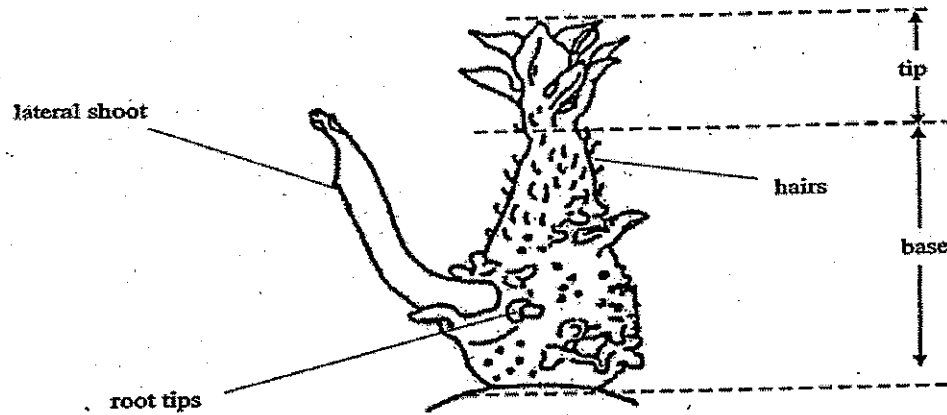
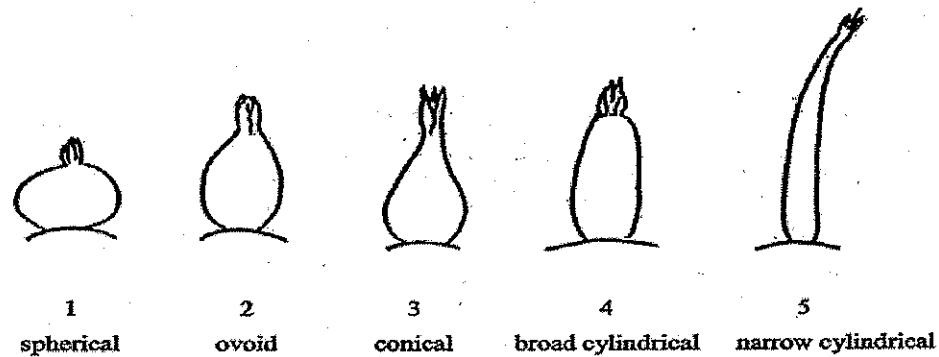
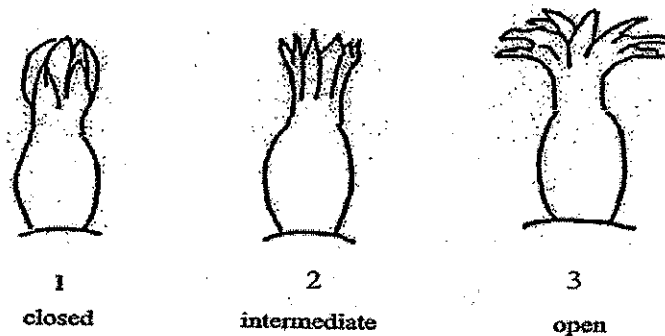
14. DNA PROFILE: 1 = YES 2 = NO ☒

IF YES, attach information

15. ADDITIONAL COMMENTS AND CHARACTERISTICS:

Include any additional descriptors that would be useful in distinguishing the candidate variety.

TX1523-1Ru/Y is a unique medium-early maturing russet skin yellow flesh variety with an oblong-oval shape - the only variety that we are aware of developed in the US which combines these two traits.

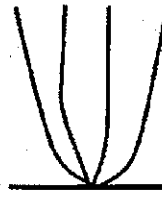
Figure 1: Light sprout**Light sprout dissection****Light sprout shape****Light sprout tip habit**

The characteristic should be observed after about 10 weeks to obtain a good differentiation in the collection.

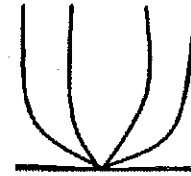
Figure 2: Growth Habit



Erect



Semi Erect



Spreading

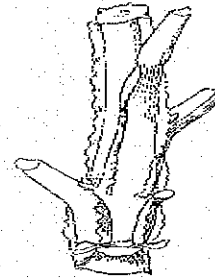
Figure 3: Stem Wings



Weak



Medium

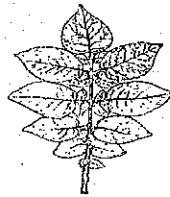


Strong

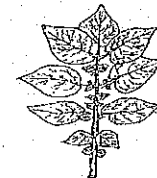
Figure 4: Leaf Silhouette



Closed

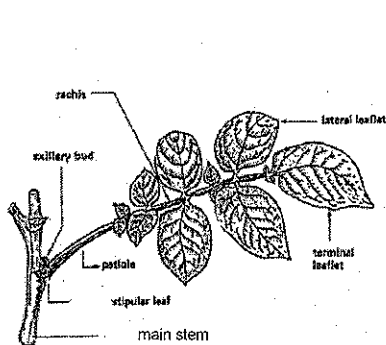


Medium

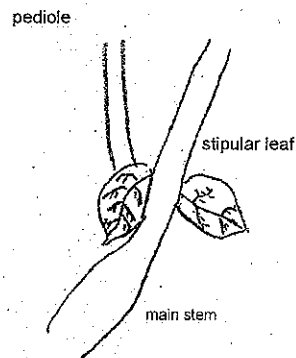


Open

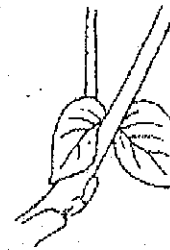
Figure 5: Leaf Stipules



General structures



Small stipular leaf



Medium stipular leaf



Large stipular leaf

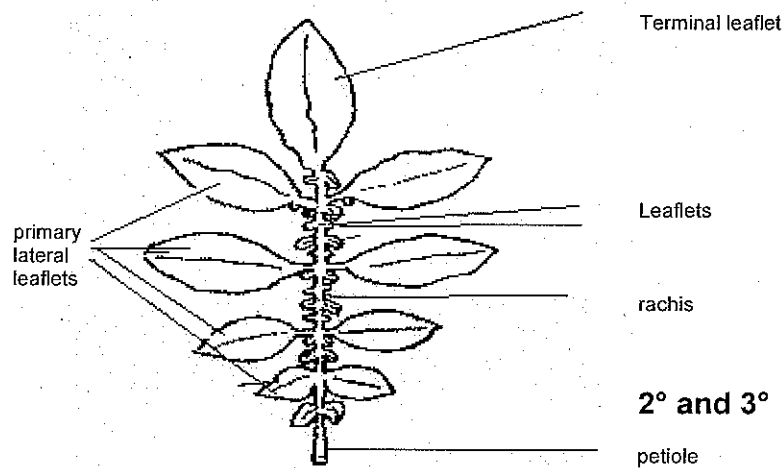
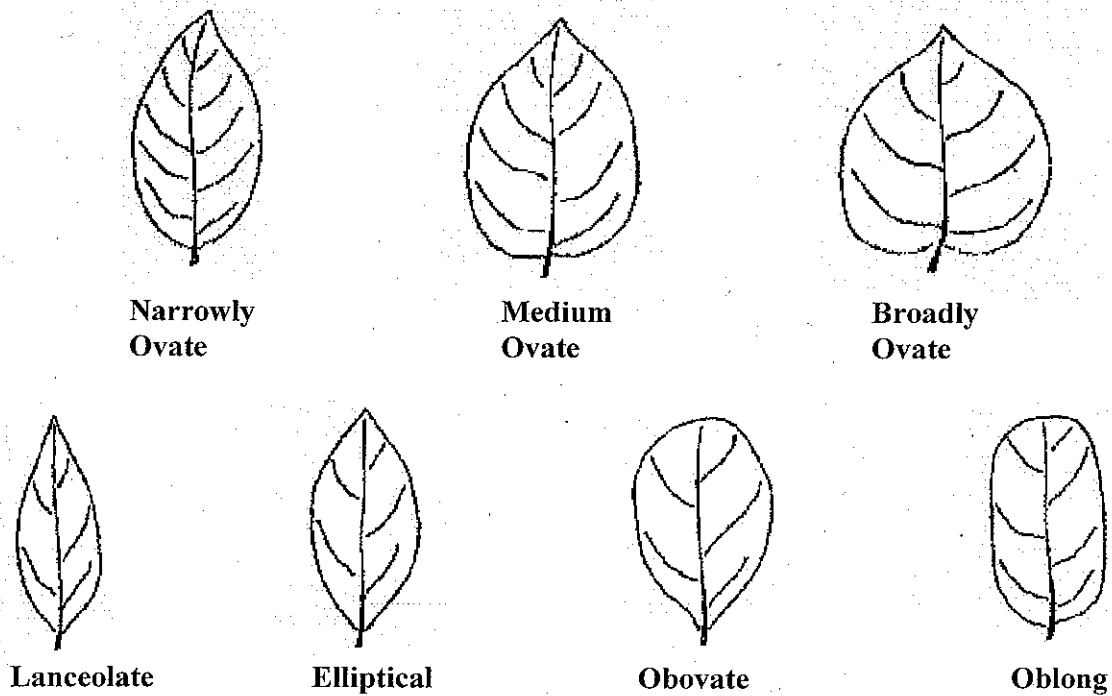
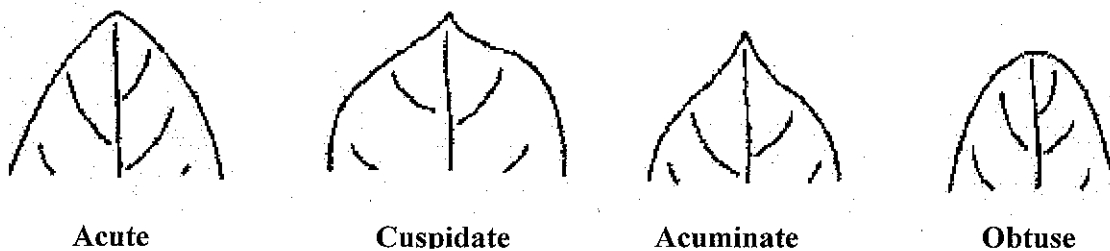
Figure 6: Leaf Dissection**Figure 7: Terminal Leaflet Shape/Primary Leaflet Shape****Figure 8: Terminal Leaflet Shape of Tip/Primary Leaflet Shape of Tip**

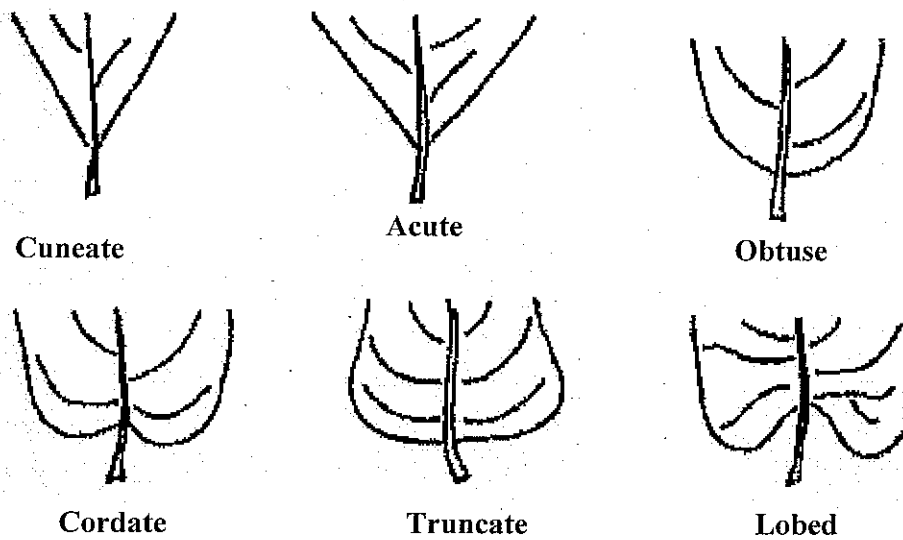
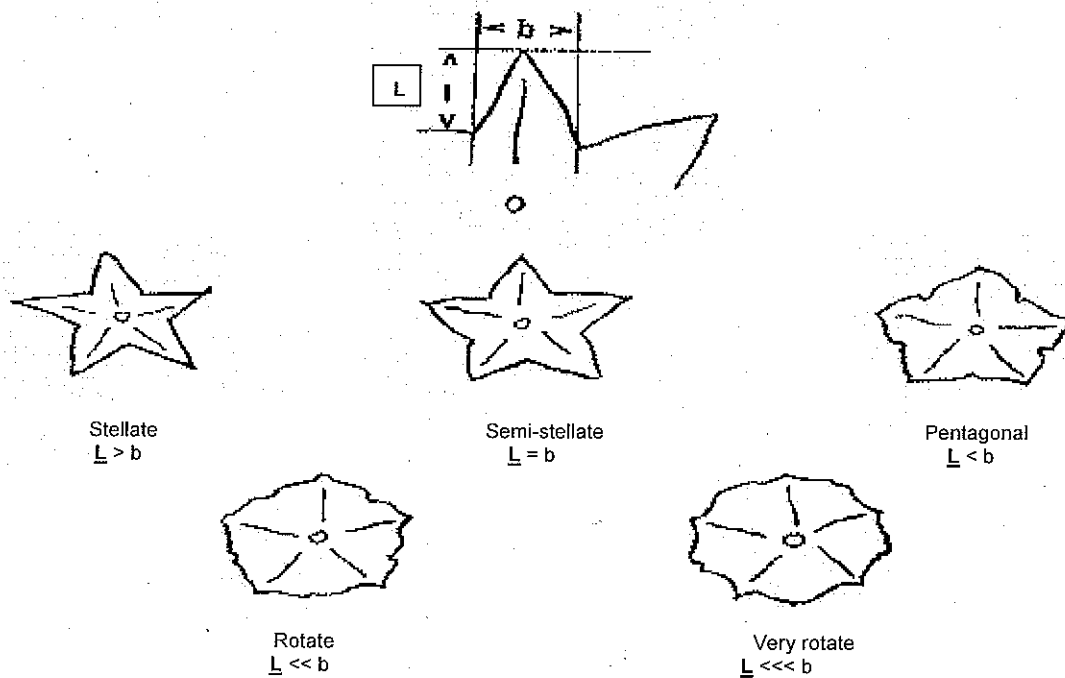
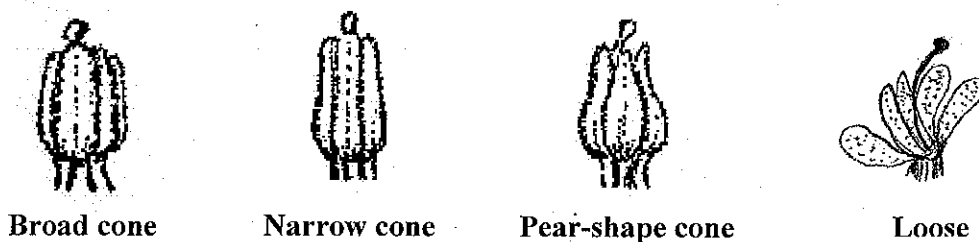
Figure 9: Terminal Leaflet Shape of Base/Primary Leaflet Shape of Base**Figure 10: Corolla Shape****Figure 11: Anther Shape**

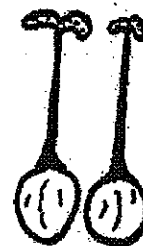
Figure 12: Stigma Shape



Capitate

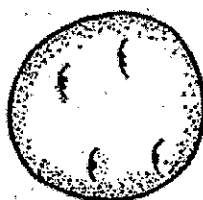


Clavate

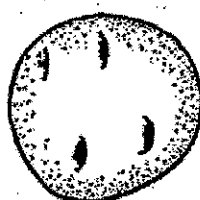


Bi-lobed

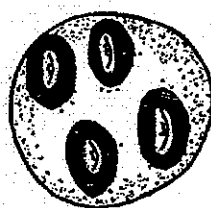
Figure 13: Distribution of Secondary Skin Tuber Color



Eyes



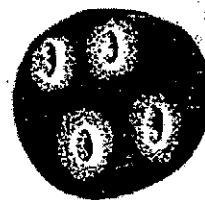
Eyebrows



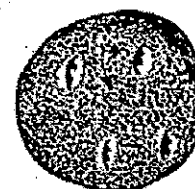
Splashed



Scattered



Spectacled



Stippled

Figure 14: Tuber Shape



Compressed



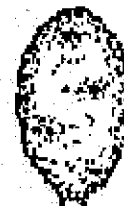
Round



Oval



Oblong



Long

References:

Huaman, Z. 1986. Systematic botany and morphology of the potato. Technical information Bulletin 6. International Potato Center, Lima, Peru.

Huaman, Z., Williams, J.T., Salhuana, W. and Vincent, L. Descriptors for the cultivated potato and the maintenance and distribution of germplasm collections. 1977. International Board for Plant Genetic Resources. Rome, Italy.

Potato (*Solanum tuberosum* L.) Guidelines for the conduct of tests for distinctness, uniformity and stability. International union for the protection of new varieties of plants (UPOV). 2004-03-31.

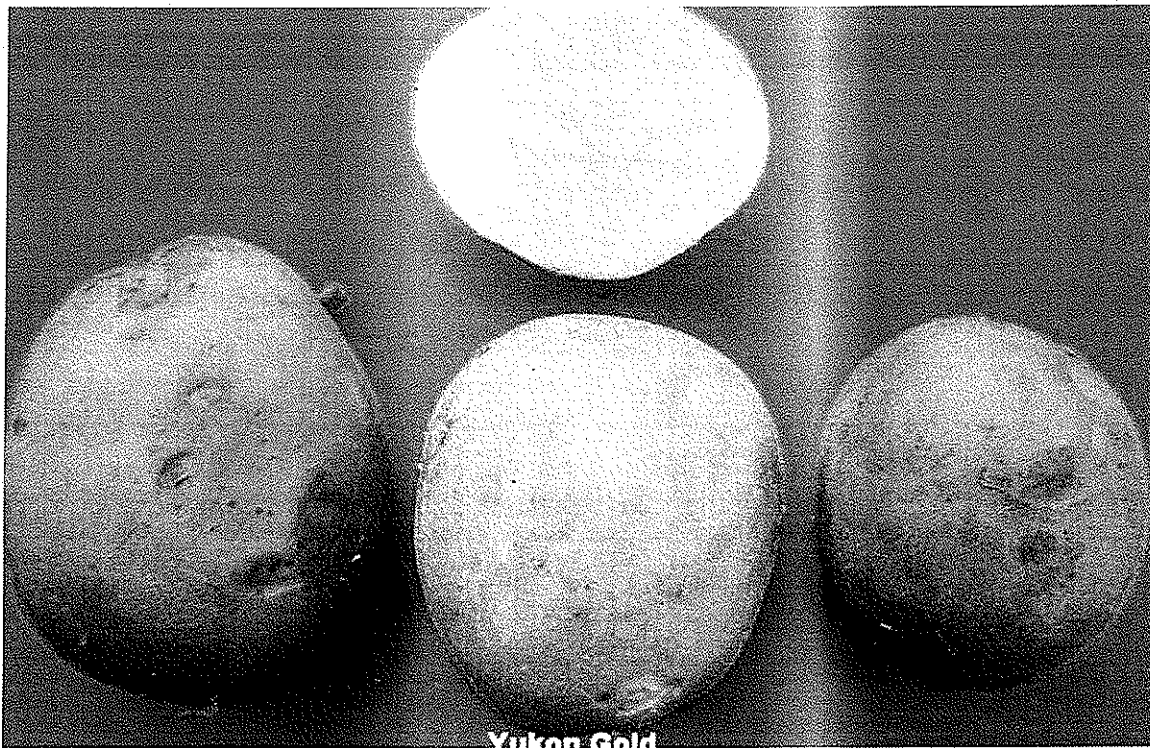
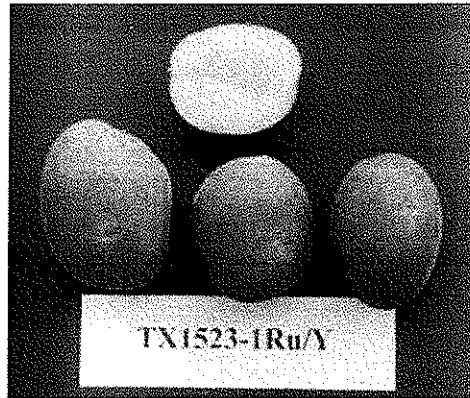
Exhibit D. Additional Description of the Variety. (Summary from attachments and other information)

Results from more than a dozen replicated trials conducted in both Texas and Colorado in 1995 (Miller and Smallwood, 1996), in Texas from 1996 to 2006 (Miller and Smallwood, 1997; Miller et al. 1998-2006) (Table 1) as well as results from the 1998 and 1999 Southwestern Regional Trails (Exhibit D, Attachment 1) conducted in California, Colorado, and Texas (Miller et al., 1999; Miller et al., 2000) and in the 2000 and 2001 Western Regional Red-skinned/Specialty Trails (Exhibit D, Attachment 2) conducted at 9 locations in six western states (Rykbost and Charlton, 2001; Rykbost and Charlton, 2002). Only the results from three years of Texas Trials, Southwestern, and Western regional Trials and selected additional pertinent information are presented herein. In general, these results have demonstrated that the yellow fleshed russet TX1523-1Ru/Y consistently exhibited performance equal to or better than the current industry standards - Yukon Gold or Russet Norkotah. TX1523-1Ru/Y is an outstanding early market specialty alternative, especially since it combines the outstanding qualities of both Yukon Gold and Russet Norkotah.

Summary Description: TX1523-1Ru/Y is a unique specialty selection in that it has a yellow flesh color (RHS 11B – yellow group) most similar to that of Yukon Gold (RHS 11B – yellow group) (Table 1d). TX1523-1Ru/Y has an attractive russet skin (RHS 199B – brown group) most similar to Russet Norkotah (RHS 199A – brown group) although it is not as heavily russeted (Table 1a). The smaller, immature tubers appear to be round but tend to take on a bit longer shape as they mature most similar to that of Yukon Gold (Table 1d). Eyes are shallow and the tuber surface is smooth which is

#200200202

most similar to Yukon Gold. Tuber size tends to be medium (4-10 oz.). Total and marketable yield varies from year to year and location to location but tends to be comparable to Yukon Gold with percent marketable yield slightly higher (Table 1a and 1b).



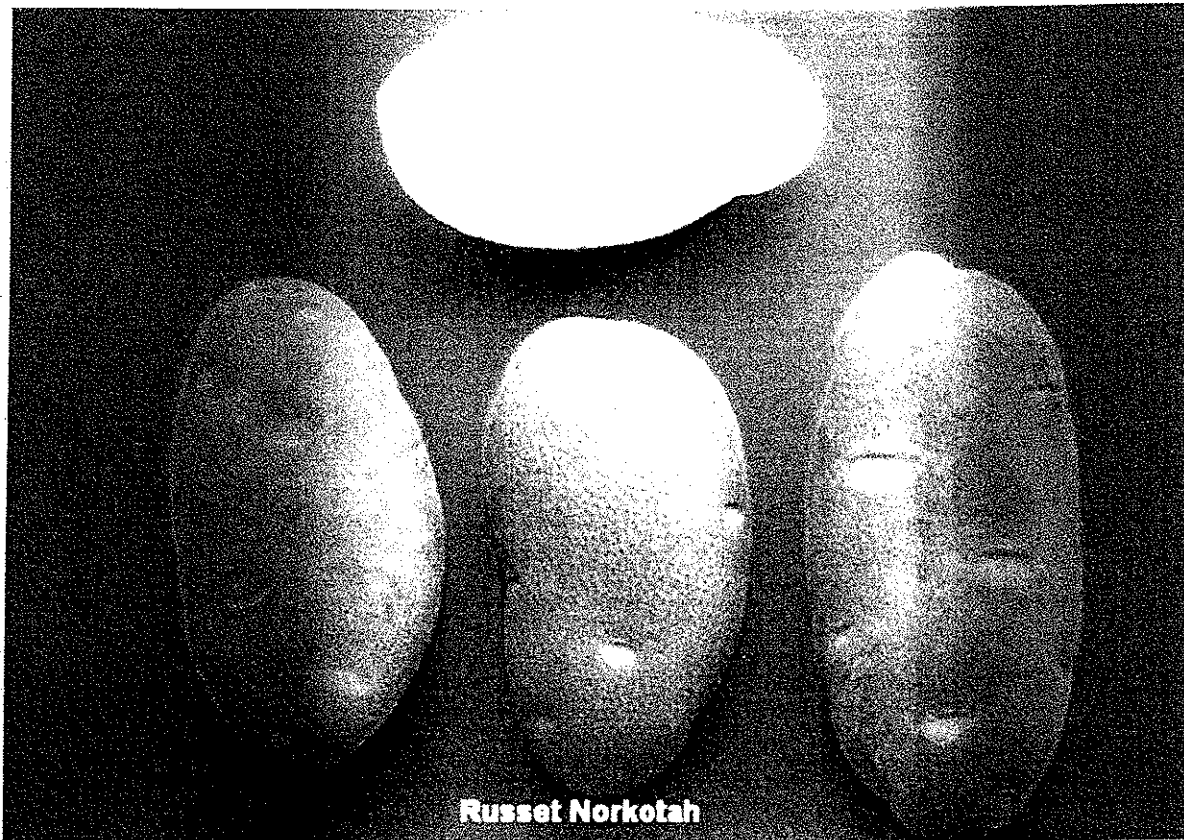


Fig. 1 Tubers and interior of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

Vines tend to be semi-prostrate, with medium vigor, vine size, and maturity. Plants of TX1523-1Ru/Y are most similar to those of Russet Norkotah, however, TX1523-1Ru/Y is slightly earlier than Russet Norkotah (99 days vs 110 respectively).

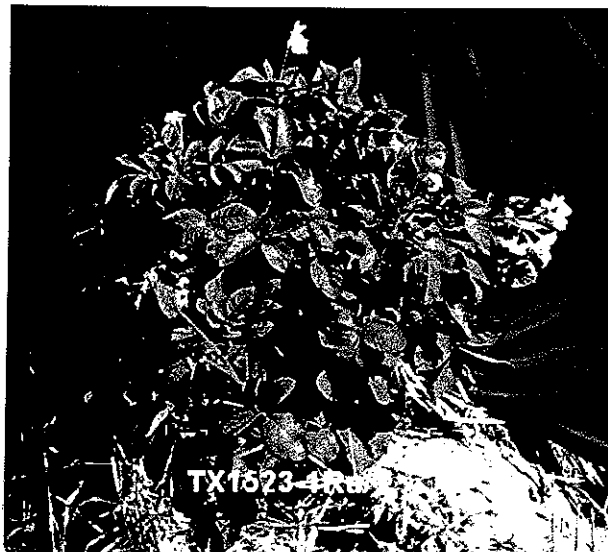
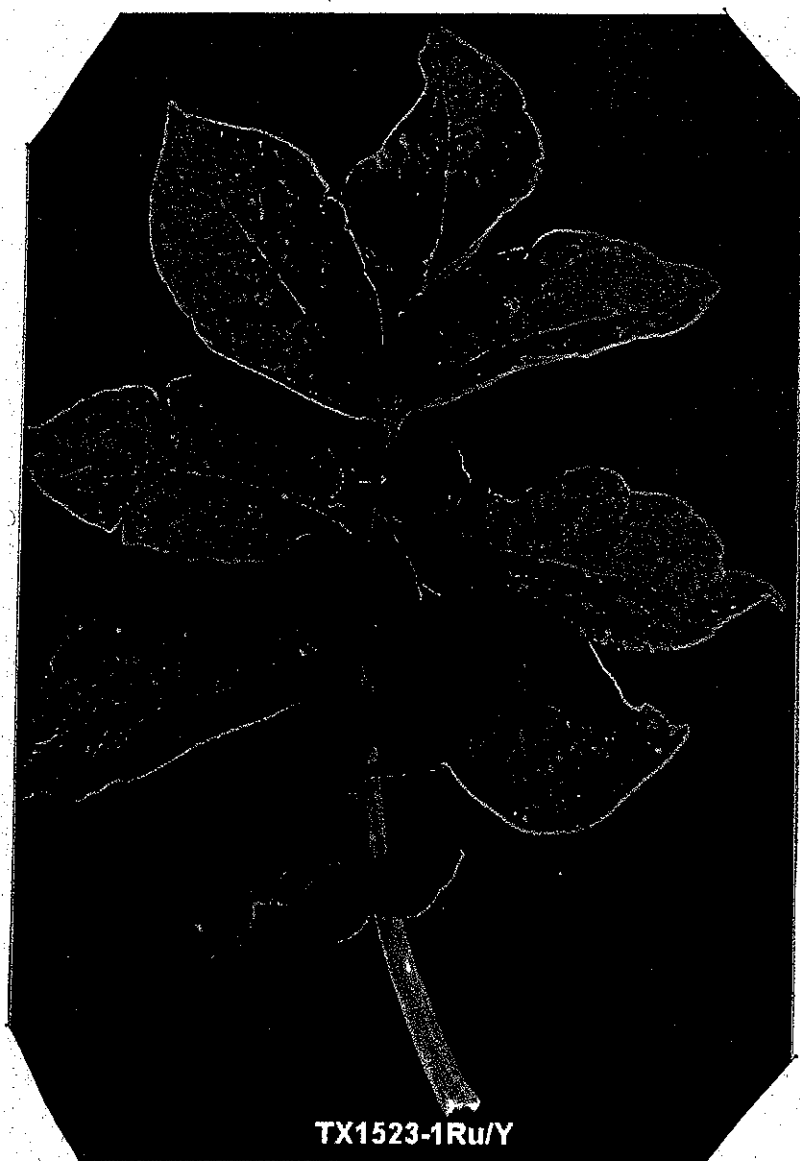




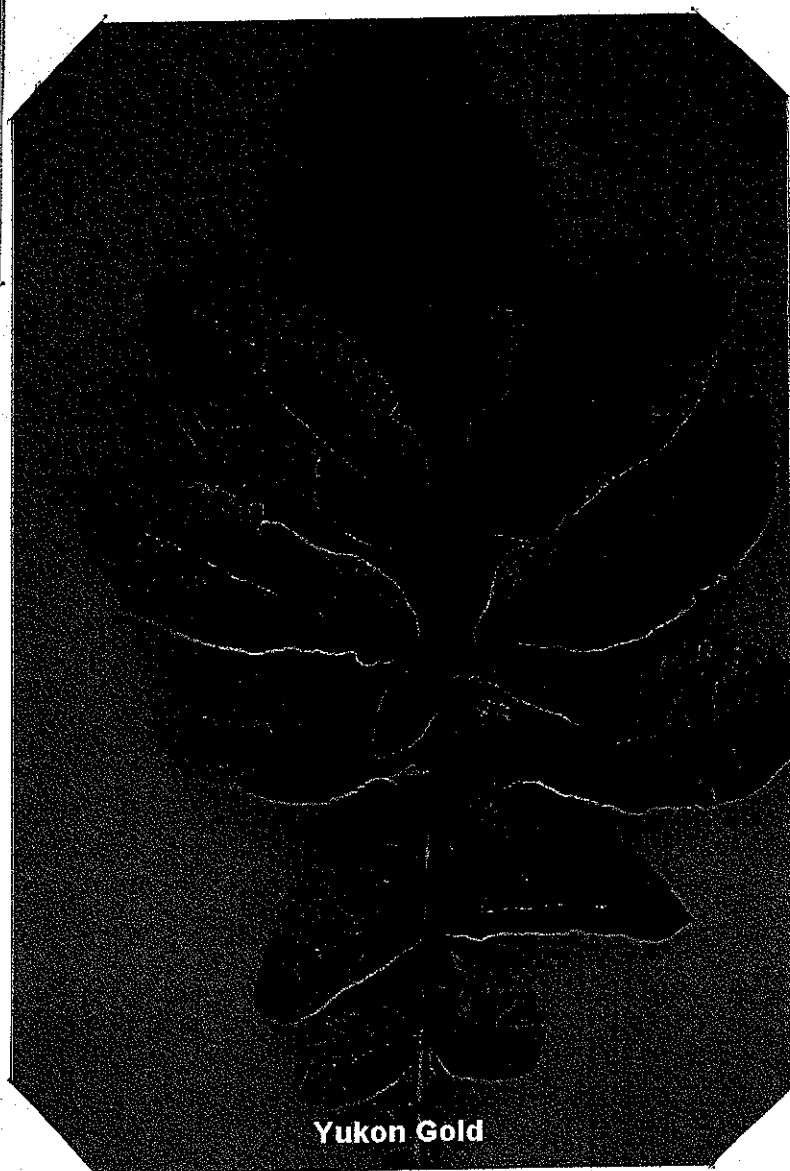
Fig 2. Plants of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

Leaves of TX1523-1Ru/Y are most similar to Yukon. All three are absent petiole color and have small stipules, however, the terminal leaflet shape of TX1523-1Ru/Y is most similar to those of Russet Norkotah.

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TX1523-1Ru/Y



Yukon Gold

#200200202



Fig. 3 Leaves of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

Flowers of TX1523-1Ru/Y are most similar to those of Yukon Gold in corolla inner and outer surface coloration (85A, 85A, 85D, and 85A – violet group respectively). The corolla shape of TX1523-1Ru/Y (pentagonal) is most similar to Russet Norkotah.

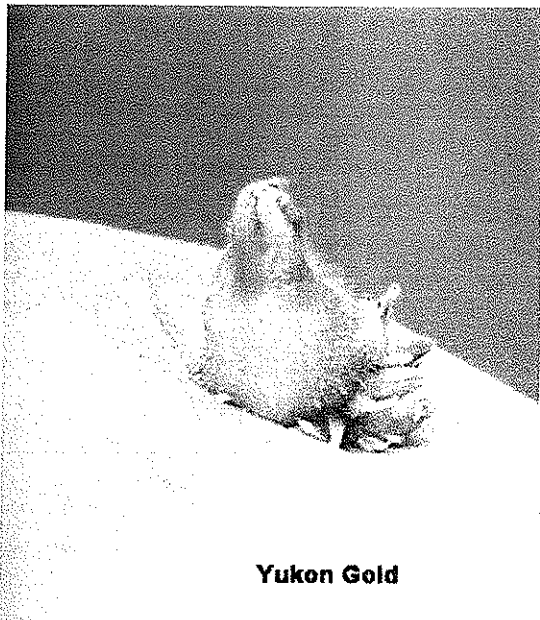
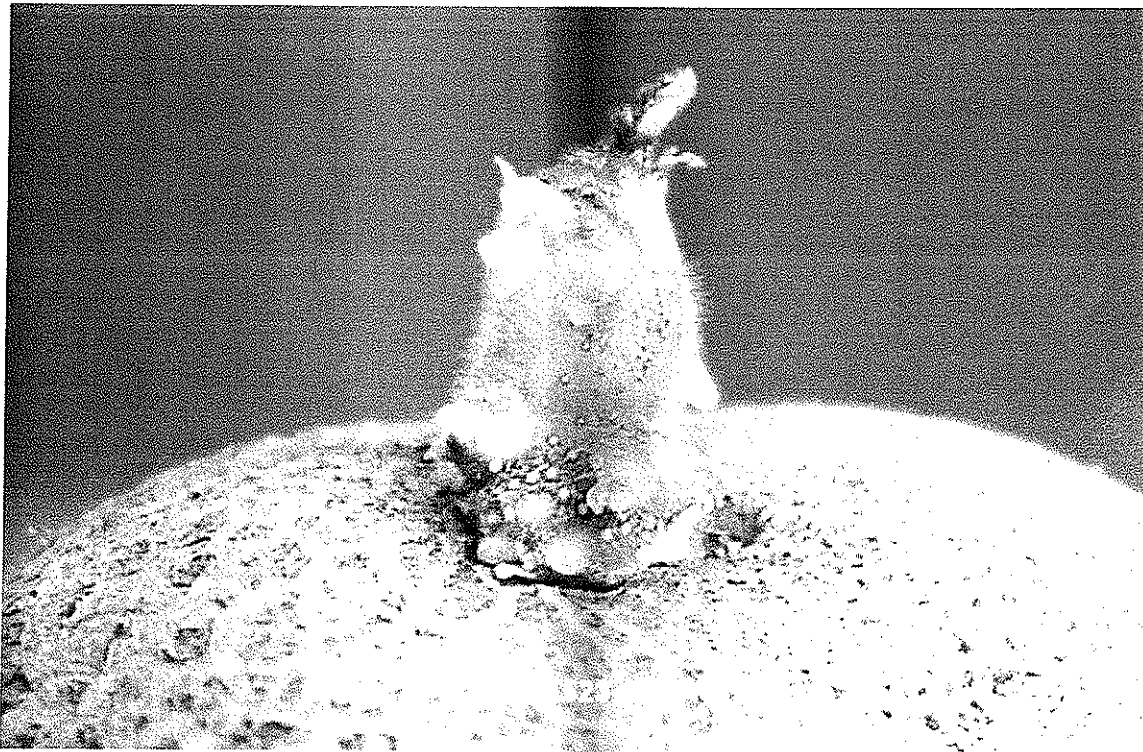


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Fig. 4 Flowers of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

Light sprouts of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah. Light sprouts of TX1523-1Ru/Y are most similar to Yukon Gold for color and pubescence although TX1523-1Ru/Y has a broad cylindrical shape, like Russet Norkotah, and Yukon Gold is conical.



Yukon Gold

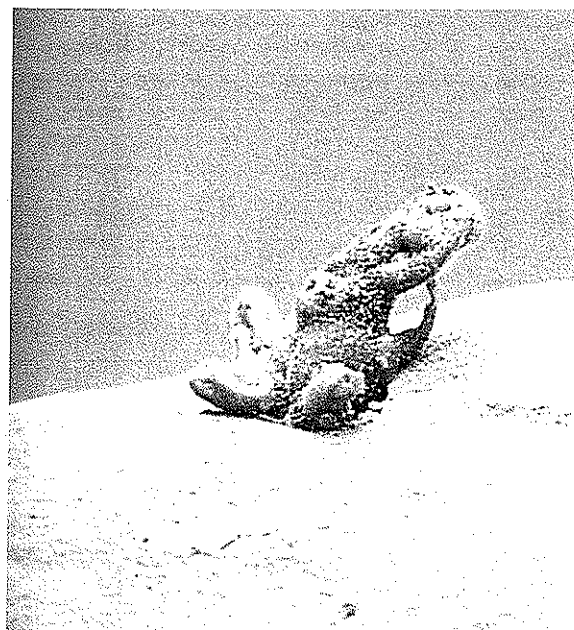


Fig. 5 Light Sprouts of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

Tubers of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah after five months in storage.

TX1523-1Ru/Y has the shortest dormancy followed by Russet Norkotah and then by Yukon Gold with the longest dormancy. Eyes are predominantly apically distributed for TX1523-1Ru/Y and Yukon Gold and evenly distributed for Russet Norkotah (stem end top).

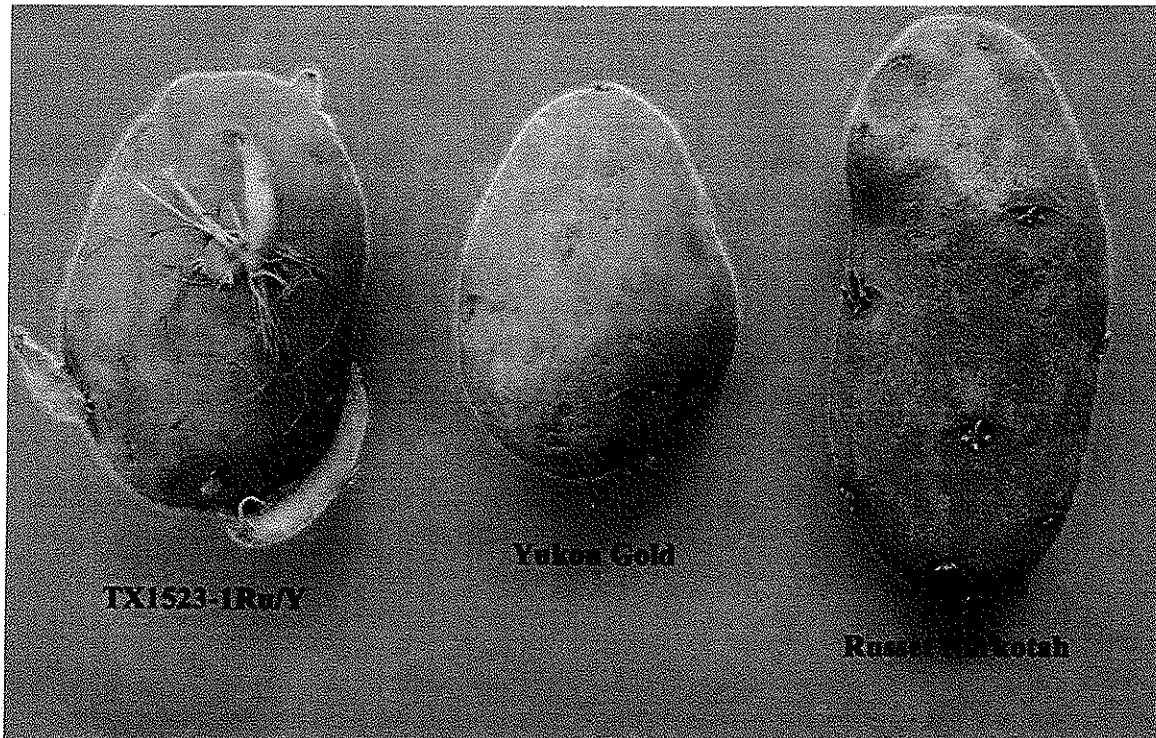


Fig. 6 After storage sprouting for TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah

TX1523-1Ru/Y tends to be less susceptible to tuber blight (21% tuber infection) than Yukon Gold (31%) (Attachment 2, Table 20).

Description of Clones and Varieties - 1998 Southwestern Regional Trial

Clone / Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Color	Enter By	Use
	Female	Male							
3. Russet Norkotah	ND9687-5Ru	ND9526-4Ru	White	Small	Early	Long	Med-Russet	Check	Fresh
4. Yukon Gold	Norglean	W5279-4	Lavender	Medium	Early	Oval	White	Check	Specialty
15. TX1523-1Ru/Y	Krantz	Delta Gold	Lavender	Medium	Medium	Round-Ob/long	Russet	TX	Specialty

Description of Clones and Varieties - 1999 Southwestern Regional Trial

Clone / Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Color	Enter By	Use
	Female	Male							
1. Yukon Gold	Norglean	W5279-4	Lavender	Medium	Early	Oval	White	Check	Specialty
2. TX1523Ru/Y	Krantz	Delta Gold	Lavender	Medium	Medium	Ob/long	Russet	TX	Specialty
3. Russet Norkotah	ND9687-5Ru	ND9526-4Ru	White	Small	Early	Long	Russet	Check	Fresh

Description of Clones - 2000 Western Regional Red-skinned Trial

Clone/Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Type	Entered By	Use	Seed	Year
	Female	Male									
Yukon Gold	Norglean	W5279-4	Lavender	Med	Early	Oval	White	Check	Fresh	OR	1
TX1523-1Ru/Y	Krantz	Delta Gold	Lavender	Med	Med	Ob/long	Russet	TX	Fresh	CO	

Description of Clones - 2001 Western Regional Red-skinned Trial

Clone/Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Type	Entered By	Use	Seed	Year
	Female	Male									
Yukon Gold	Norglean	W5279-4	Lavender	Med	Early	Oval	White	Check	Fresh	OR	2
TX1523-1Ru/Y	Krantz	Delta Gold	Lavender	Med	Med	Ob/long	Russet	TX	Fresh	CO	

Description of Clones - 2002 Western Regional Red-skinned Trial

Clone/Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Type	Entered By	Use	Seed	Year
	Female	Male									
Yukon Gold	Norglean	W5279-4	Lavender	Med	Early	Oval	White	Check	Fresh	OR	***
TX1523-1Ru/Y	Krantz	Delta Gold	Lavender	Med	Med	Ob/long	Russet	TX	Fresh	OR	

Detailed Description:**Plant Characteristics:**

- **Vine Maturity.** TX1523-1Ru/Y and Yukon Gold are early maturing, while Russet Norkotah is slightly later than the other two (Table 1 d).

Disease Reactions:

- **Late Blight.** TX1523-1Ru/Y has been shown to be somewhat less susceptible to late blight, especially tuber infection, than Yukon Gold or Russet Norkotah (Attachment 3).
- **Viruses.** When plants were scored for visible seed borne and current season virus symptoms in late July of 2001 in Corvallis, OR., 50% fewer TX1523-1Ru/Y plants (12.9%) were found to express symptoms than Yukon Gold (25.8%) and Russet Norkotah (24.3%). This indicated that TX1523-1Ru/Y possess greater resistance to virus infection than either Yukon Gold or Russet Norkotah (Attachment 5).
- **Black Scurf and Common Scab.** TX1523-1Ru/Y has a much greater resistance to common scab than Yukon Gold and is less susceptible to black scurf (Attachment 13).

Herbicide Reaction:

- **Metribuzin.** TX1523-1Ru/Y and Yukon Gold were shown to be very resistant/resistant to plant injury from metribuzin (Sencor/Lexone) while Russet Norkotah was rated resistant/moderately resistant (Attachment 4).

External Defects:

- **Knobs, Growth Cracks, and Sunburn.** While these defects are not a serious problem with TX1523-1Ru/Y, Yukon Gold, or Russet Norkotah, TX1523-1Ru/Y was the only clone/variety to register a lower percent (fewest) of defects than the three-clone average for all three external defect categories in Corvallis, OR, 2001 (Attachment 5).

Internal Defects:

- **Hollow Heart, Vascular Discoloration, and Brown Center.** TX1523-1Ru/Y has consistently exhibited fewer problems with hollow heart than either Yukon Gold or Russet Norkotah (Table 1d, Attachments 5 and 7). TX1523-1Ru/Y could be classified as moderately resistant to this internal defect. At Corvallis, OR, 2001, susceptibility of TX1523-1Ru/Y (12.5%) to vascular discoloration was found to be about the same as Yukon Gold (10.0%) but much less than Russet Norkotah (32.5%) (Attachment 5).
- **Blackspot Bruising/Discoloration and Enzymatic Browning.** There was no significant difference found among TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah for blackspot discoloration or enzymatic browning at Center, CO, 2000

(Attachment 6). Yukon Gold may bruise slightly less than TX1523-1Ru/Y or Russet Norkotah (Attachment 7).

Tuber Dormancy and Weight Loss in Storage:

- TX1523-1Ru/Y has significantly shorter tuber dormancy (63 days from harvest when stored at 45°F) than either Yukon Gold (91 days) or Russet Norkotah (98 days) based on studies conducted at Center, CO, 2000. This indicates that TX1523-1Ru/Y may be more difficult to store for an extended period (Attachment 6). Percent weight loss in storage averaged only 3.6% among the three clones/varieties and was not excessive (Attachment 6).

Tuber Quality Characteristics:

- **Specific Gravity.** There is no significant difference in specific gravity between TX1523-1Ru/Y and Yukon Gold (Table 1b, Attachment 7). However, in most trials, TX1523-1Ru/Y and Yukon Gold tended to have higher specific gravity than Russet Norkotah, with Yukon Gold slightly higher than TX1523-1Ru/Y (Table 1b, Attachments 7, and 12).
- **Glycoalkaloids.** Glycoalkaloids for TX1523-1Ru/Y (3.4 mg/100g FWB, 2000 and 3.5 mg/100g FWB, 2001) have been found to be acceptable when compared to the standard varieties Yukon Gold (4.0 mg/100g FWB, 2000 and 2.7 mg/100g FWB, 2001) and Russet Norkotah (2.1 mg/100g FWB, 2000 and 3.3 mg/100g FWB, 2001) (Data provided by Dr. Dennis Corsinni, USDA/ARS, Aberdeen, ID).

Processing Characteristics:

- **Chip Color.** While TX1523-1Ru/Y and Yukon Gold are not intended for the mainstream chip industry, in North Dakota 2001, TX1523-1Ru/Y was found to produce significantly lighter chips than Yukon Gold out of 42°F storage and following reconditioning for two and four week periods (Attachment 9).
- **French Fry.** TX1523-1Ru/Y was judged to be significantly superior to Yukon Gold in french fry color, texture, flavor, and combined sensory score in tests conducted in North Dakota in 2000 (Attachment 11).

Yield:

- Total yield and marketable yield among TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah varies depending on season and location. Across three years and two locations in Texas, TX1523-1Ru/Y and Russet Norkotah produced significantly higher total yield compared to Yukon Gold (Table 1a). In three locations in North Dakota in 2001, TX1523-1Ru/Y produced greater average yield (305 CWT) than Yukon Gold (252 CWT) but about the same as Russet Norkotah (309 CWT). TX1523-1Ru/Y had the highest percentage of US No 1 tubers (94%) (Attachment 8). TX1523-1Ru/Y had the highest average total yield (348 CWT) and marketable yield (321 CWT) compared to Yukon Gold (324, 298 CWT) and Russet Norkotah (241, 177 CWT) from three Nebraska locations, 2001 (Attachment 12). Data from two years in the Southwestern Regional Trials showed TX1523-1Ru/Y average yields to be somewhat lower than Yukon Gold and Russet Norkotah (Attachment 1). In two years of the Western Regional

Red/Specialty Trials, Yukon Gold had the higher yield in 2000, while TX1523-1Ru/Y was higher in 2001 (Attachment 2).

Fresh Market Merit Score:

- TX1523-1Ru/Y received the highest overall merit score in the 1999 Southwestern Regional Trial and 2000 Western Regional Red/Specialty Trial (Attachments 1 and 2).

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Rykbost, K.A., B.A. Charlton, and Cooperators. 2002. Western Regional Red-skinned/Specialty Trial. In: K. Haynes, (ed) National Germplasm Evaluation and Enhancement Report, 2001. U.S.D.A. Agricultural Research Center, Beltsville, MD, (submitted).

Attachment 3. Foliar disease and tuber infection ratings at harvest from Replicated Late Blight Resistance Screening Trials for three clones/varieties entered in the Southwestern Regional Trial, Corvallis, OR, 2000 and 2001.

Clone / Variety	Foliar Rating ¹		Foliar Rating ²		% Tuber Infection ³	
	2000	2001	2001		2000	2001
Yukon Gold	9.0	8.0	9.0		15	50
TX1523-IRu/Y	9.0	7.3	8.8		10	40
Russet Norkotah	9.0	8.0	8.75		13	50
Mean	9.0	7.8	8.9		13	47

Ratings are averages for 4 reps: 1 no foliar injury; 2=1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 =60-75%; 8 = 75-90%; 9 = 90-100% injury. Data provided by Dr. Alvin Mosley, Oregon State University

¹ Foliar rating taken on 9/21/01

² Foliar rating taken on 9/28/01

³ Percent of late blight infected tubers based on 10 randomly selected tubers

Attachement 4. Reaction of potato clones/varieties to the herbicide Metribuzin (Sencor/Lexone), Aberdeen, ID, 2000 and 2001¹.

Clone / Variety	Plant Injury		Predicted		Relative	
	21 Days Following		Yield Reduction		Susceptibility	
	Application ²		Due to Injury ³		to Injury ⁴	
	2000	2001	2000	2001	2000	2001
Yukon Gold	13	0	0	0	VR	R
TX1523-1Ru/Y	25	3	5	0	VR	R
Russet Norkotah	40	13	20	0	MR	R
Mean	26	5	8	0		

¹ Metribuzen applied postemergence (8-12 inch plants) at a rate of 1.0 a.i./A (17.5 gph, 30 psi)

² Plant injury was recorded as the percentage of foliage from average plant in each plot that showed typical Metribuzen symptoms (chlorosis, necrosis, vein clearing, etc.)

³ Predicted yield reduction is expressed as percent loss compared to untreated plots and was calculated using the following equation: Yield reduction = $[\text{Log (plant height treated/plant height untreated)}] - 0.00796 (\text{plant injury})] \times 100$

⁴ VR=very resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible, VS=very susceptible

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Attachment 5. External and internal tuber defects and percent virus infection of three potato clones/varieties at Corvallis, OR, 2001.

Clone / Variety	External Defects (%) ¹			Internal Defects (%) ²			% Virus ³
	K	GC	G	HH	VD	BC	
Yukon Gold	0.6	2.1	0.9	5.0	10.0	0.0	25.8
TX1523-1Ru/Y	0.7	0.7	0.4	2.5	12.5	0.0	12.9
Russet Norkotah	2.7	0.9	0.2	7.5	32.5	0.0	24.3
Mean	1.3	1.2	0.5	5.0	18.3	0.0	21.0

¹ K = Knobs, GC = Growth Cracks, G = Sunburn² HH = Hollow Heart, VD = Vascular Discoloration, BC = Brown Center

Figures based on 10 U.S. No 1 tubers per replication

³ Percent of plants with visible seedborne and current-season virus symptoms in late July

Attachment 6. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for three clones/varieties entered in the Western Regional Red/Specialty Trial entries, Center, CO, 2000.

Clone / Variety	Blackspot Index ¹			% Weight Loss ²	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
Yukon Gold	3.9	2.8	3.4	3.0	91	4.6
TX1523-IRu/Y	4.3	2.9	3.6	4.0	63	5.0
Russet Norkotah	4.8	3.9	4.4	3.8	98	3.0
Mean	4.3	3.2	3.8	3.6	84	4.2

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration

² Tubers were stored at 45°F for 91 days

³ Days from harvest to first visible growth. Tubers were stored at 45°F

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration

Attachment 7. Varietal characteristics of TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah grown in three North Dakota locations, 2001.

Location Clone/Variety	Vine Maturity ¹	Hollow Heart %	Blackspot Bruise ²	Specific Gravity ³	General Rating ⁴
Hoop, ND (Dry Land)					
TX 1523-1Ru/Y	2.0	5.0	4.3	1.0795	3.8
Yukon Gold	2.0	52.5	3.6	1.0685	3.8
Russet Norkotah	1.5	32.5	4.4	1.0740	4.0
Larimore, ND (Center Pivot)					
TX 1523-1Ru/Y		0.0	4.1	1.0773	3.8
Yukon Gold		7.5	2.6	1.0778	4.0
Russet Norkotah		0.0	3.7	1.0750	4.0
Dawson, ND (Center Pivot)					
TX 1523-1Ru/Y		0.0	2.4	1.0788	3.5
Yukon Gold		0.0	2.0	1.0848	3.8
Russet Norkotah		2.5	3.5	1.0768	4.0
AVERAGE					
TX 1523-1Ru/Y	2.0	1.7	3.6	1.0785	3.7
Yukon Gold	2.0	20.0	2.7	1.0770	3.9
Russet Norkotah	1.5	11.7	3.9	1.0753	4.0

¹ Vine maturity, scale 1-5, 1=early, 5=late

² Blackspot bruise determined by the abrasive peel method, scale 1-5, 1=none, 5=severe

³ Specific gravity determined by weight-in-air, weight -in-water method

⁴ General rating based on scale of 1 to 5, 1=poor, 5=excellent

Attachment 8. Yield and size distribution for TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah grown in three North Dakota locations, 2001.

Location Clone/Variety	Total		US No. 1		US No. 1 >3.0"		2.5-3.0"		2.0-2.5"		Culls	
	Yield	cwt/a	cwt/a	%	%	%	%	%	%	%	<2.0"	%
Hoop, ND (Dry Land)												
TX 1523-1Ru/Y	248		225	91	1	65	25	7	2			
Yukon Gold	229		209	91	6	52	34	7	1			
Russet Norkotah	284		242	85	0	35	51	12	3			
Larimore, ND (Center Pivot)												
TX 1523-1Ru/Y	359		251	97	0	79	18	3	0			
Yukon Gold	259		238	92	10	63	19	5	3			
Russet Norkotah	291		259	89	1	54	33	9	2			
Dawson, ND (Center Pivot)												
TX 1523-1Ru/Y	307		285	93	1	71	22	7	0			
Yukon Gold	268		243	90	6	62	21	4	6			
Russet Norkotah	353		337	96	22	51	23	4	0			
AVERAGE												
TX 1523-1Ru/Y	305		254	94	1	72	22	6	1			
Yukon Gold	252		230	91	7	59	25	5	3			
Russet Norkotah	309		279	90	8	47	36	8	2			

Attachment 9. Chip evaluations for TX1523-1Ru/Y and Yukon Gold grown in three North Dakota locations, 2001.

Location Clone/Variety	Agtron Reading ¹		
	42°F - Direct	2 Week RC ²	4 Week RC ²
<u>Hoople, ND (Dry Land)</u>			
TX 1523-1Ru/Y	38	44	49
Yukon Gold	37	41	43
<u>Larimore, ND (Center Pivot)</u>			
TX 1523-1Ru/Y	46	50	59
Yukon Gold	35	40	47
<u>Dawson, ND (Center Pivot)</u>			
TX 1523-1Ru/Y	44	50	57
Yukon Gold	42	48	53
AVERAGE			
TX 1523-1Ru/Y	43	48	55
Yukon Gold	38	43	48

¹ Agtron reading 0-90; 0=black, 90=white; 55=minimum acceptable color

² RC = Reconditioned at 65°F after 8 weeks at 42°F

Attachment 10. Average boiling, baking, and microwaving scores for TX1523-1Ru/Y and Yukon Gold, North Dakota, 2000.

Clone/Variety	Boiling		Baking		Microwaving		# of samples
	Mealiness	Flavor	Mealiness	Flavor	Mealiness	Flavor	
TX 1523-1Ru/Y	5.7	5.3	6.5	4.8	5.8	6.5	3
Russet Norkotah	5.7	6.1	5.5	5.8	5.5	6.1	4

Rating Guide

Flavor: a measure of good palette. 1-10 with 1 poorest and 10 best

Mealiness: a measure of wetness vs dryness. 1-10 with 1 most wet and 10 most dry

Note: the 6.5 microwave flavor value for TX1523-1Ru/Y was the second highest value among 48 entries

Attachment 11. Average French fry evaluation scores for TX1523-1Ru/Y and Yukon Gold, grown in two North Dakota locations, 2000.

Location Clone/Variety	Color	Texture	Flavor	Combined Sensory Score ¹
Larimore, ND (Center Pivot)				
TX 1523-1Ru/Y	6.1	6.4	6.5	6.3
Yukon Gold	5.7	5.8	5.8	5.8
Dawson, ND (Center Pivot)				
TX 1523-1Ru/Y	5.9	6.4	6.0	6.1
Yukon Gold	4.3	5.2	5.5	5.0
AVERAGE				
TX 1523-1Ru/Y	6.0	6.4	6.3	6.2
Yukon Gold	5.0	5.5	5.7	5.4

Rating Guide

7-9 Good

5-6 Fair, and acceptable

1-4 Poor, not acceptable

¹Combined sensory score is the average of the three ratings for color, texture, taste

Attachment 12. Yield and specific gravity for TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah grown in three Nebraska locations, 2001.

<u>Location</u> Clone/Variety	Total Yield cwt/a	Yield of > 17/8" Tubers	Specific Gravity
Imperial, NE			
TX 1523-1Ru/Y	340	297	1.067
Yukon Gold	313	281	1.068
Russet Norkotah	232	151	1.065
O'Neill, NE			
TX 1523-1Ru/Y	354	329	1.074
Yukon Gold	404	379	1.080
Russet Norkotah	272	196	1.066
Scotts Bluff, NE			
TX 1523-1Ru/Y	350	336	1.084
Yukon Gold	255	234	1.085
Russet Norkotah	219	183	1.078
AVERAGE			
TX 1523-1Ru/Y	348	321	1.075
Yukon Gold	324	298	1.078
Russet Norkotah	241	177	1.070

Attachment 13. Percent black scurf and common scab for TX1523-1Ru/Y, Yukon Gold, and Russet Norkotah grown in three Nebraska locations, 2001.

Location Clone/Variety	% Black Scurf	% Common Scab
Imperial, NE		
TX 1523-1Ru/Y	0	0
Yukon Gold	0	0
Russet Norkotah	0	0
O'Neill, NE		
TX 1523-1Ru/Y	0	0
Yukon Gold	3	0
Russet Norkotah	0	0
Scotts Bluff, NE		
TX 1523-1Ru/Y	4	0
Yukon Gold	19	15
Russet Norkotah	3	0
AVERAGE		
TX 1523-1Ru/Y	1.3	0.0
Yukon Gold	7.3	5.0
Russet Norkotah	1.0	0.0

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DOCUMENTATION IN SUPPORT OF CERTIFICATE

The following documents were submitted in support of this Certificate and are on file in the United States Plant Variety Protection Office:

Southwestern Regional Trials 1998 and 1999

Western Regional Trials 2000, 2001, and 2003

Standard Procedure Management and Release of New Plant Material

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Texas Agricultural Experiment Station	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER TX1523-1Ru/Y	3. VARIETY NAME TX1523-1Ru/Y
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) Office of the Director, TAES 2147 TAMU College Station, TX 77843-2147	5. TELEPHONE (Include area code) 979-845-4747	6. FAX (Include area code) 979-458-4765
7. PVPO NUMBER 200200202		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

TAES policy and handbook manual provide that all germplasm and varieties developed by its employees in the course of their duties are owned by TAES. A copy of this policy is provided for your records.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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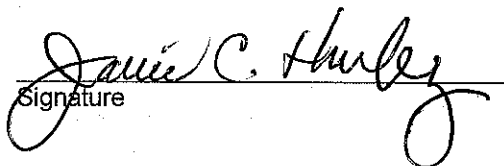
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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Texas Agricultural Experiment Station	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of the Director, TAES 2147 TAMU College Station, TX 77843-2147	TEMPORARY OR EXPERIMENTAL DESIGNATION TX1523-1Ru/Y VARIETY NAME TX1523-1Ru/Y
NAME OF OWNER REPRESENTATIVE (S) Janie C. Hurley	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of the Director, TAES 2147 TAMU College Station, TX 77843-2147	FOR OFFICIAL USE ONLY PVPO NUMBER #200200202

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature 

Date 04/03/07